



# **STIC Search Report**

## **EIC 1700**

**STIC Database Tracking Number: 93318**

**TO: Amanda Walke  
Location: CP3 9B30  
May 7, 2003**

**Case Serial Number: 09/942768**

**From: Kathleen Fuller  
Location: EIC 1700  
CP3/4 3D62  
Phone: 308-4290**

**Kathleen.Fuller@uspto.gov**

### **Search Notes**

**SEARCH REQUEST FORM****Scientific and Technical Information Center**

Requester's Full Name: Amenda WALKER Examiner #: 75663 Date: 5/6/2003  
 Art Unit: 1952 Phone Number 305-2407 Serial Number: 09/942768  
 Mail Box and Bldg/Room Location: 003 9B30 Results Format Preferred (circle): PAPER DISK E-M

**If more than one search is submitted, please prioritize searches in order of need.**

\*\*\*\*\*

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept of utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: \_\_\_\_\_

Inventors (please provide full names): Uenishi, Kazuya

Earliest Priority Filing Date: 8/31/2000

*\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for a resin comprising formula (I) - this is very broad so there are too many hits, then formula (2). ~~Selection of parent~~ If it is still a broad search then it may be narrowed by searching for the resin w/ a comp of one of formulas (I), (II), or (III). Thank you.

**STAFF USE ONLY**

	Type of Search	Vendors and cost where applicable
Searcher: <u>K. Fuller</u>	NA Sequence (#) _____	STN <u>✓</u>
Searcher Phone #: _____	AA Sequence (#) _____	Dialog _____
Searcher Location: _____	Structure (#) <u>4</u>	Questel/Orbit _____
Date Searcher Picked Up: _____	Bibliographic _____	Dr. Link _____
Date Completed: <u>5/7/03</u>	Litigation _____	Lexis/Nexis _____
Searcher Prep & Review Time: <u>20</u>	Fulltext _____	Sequence Systems _____
Clerical Prep Time: _____	Patent Family _____	WWW/Internet _____
Online Time: <u>45</u>	Other _____	Other (specify) _____

# EIC1700

## Search Results

### Feedback Form (Optional)



Scientific & Technical Information Center

The search results generated for your recent request are attached. If you have any questions or comments (compliments or complaints) about the scope or the results of the search, please contact *the EIC searcher* who conducted the search *or contact*:

Kathleen Fuller, Team Leader, 308-4290, CP3/4 3D62

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#### *Voluntary Results Feedback Form*

➤ *I am an examiner in Workgroup:*  *Example:*

➤ *Relevant prior art found, search results used as follows:*

- ☐ 102 rejection
- ☐ 103 rejection
- ☐ Cited as being of interest.
- ☐ Helped examiner better understand the invention.
- ☐ Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature  
(journal articles, conference proceedings, new product announcements etc.)

➤ *Relevant prior art not found:*

- ☐ Results verified the lack of relevant prior art (helped determine patentability).
- ☐ Search results were not useful in determining patentability or understanding the invention.

**Other Comments:**

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Drop off completed forms in CP3/4 - 3D62 .

=> FILE REG

FILE 'REGISTRY' ENTERED AT 16:05:14 ON 07 MAY 2003  
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Property values tagged with IC are from the ZIC/VINITI data file  
provided by InfoChem.

STRUCTURE FILE UPDATES: 6 MAY 2003 HIGHEST RN 511508-58-0  
DICTIONARY FILE UPDATES: 6 MAY 2003 HIGHEST RN 511508-58-0

TSCA INFORMATION NOW CURRENT THROUGH JANUARY 6, 2003

Please note that search-term pricing does apply when  
conducting SmartSELECT searches.

Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP  
PROPERTIES for more information. See STNote 27, Searching Properties  
in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> FILE HCAPLUS

FILE 'HCAPLUS' ENTERED AT 16:05:19 ON 07 MAY 2003  
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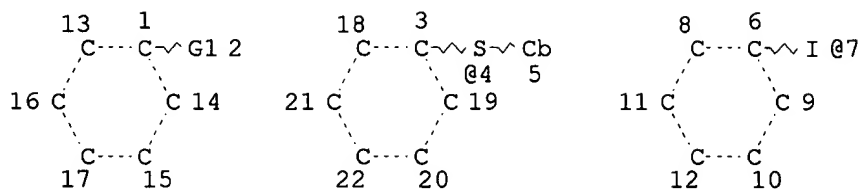
FILE COVERS 1907 - 7 May 2003 VOL 138 ISS 19  
FILE LAST UPDATED: 6 May 2003 (20030506/ED)

This file contains CAS Registry Numbers for easy and accurate  
substance identification.

=> D QUE L33

L4 112 SEA FILE=REGISTRY ABB=ON 620-18-8/CRN  
L12 48 SEA FILE=REGISTRY ABB=ON 51985-06-9/CRN  
L24 STR





VAR G1=4/7

NODE ATTRIBUTES:

CONNECT IS E3 RC AT 4

DEFAULT MLEVEL IS ATOM

DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 22

STEREO ATTRIBUTES: NONE

L26 4697 SEA FILE=REGISTRY SSS FUL L24  
 L27 160 SEA FILE=REGISTRY ABB=ON L12 OR L4  
 L29 5909 SEA FILE=HCAPLUS ABB=ON L26  
 L30 172 SEA FILE=HCAPLUS ABB=ON L27  
 L31 53 SEA FILE=HCAPLUS ABB=ON L29 AND L30  
 L32 14787 SEA FILE=HCAPLUS ABB=ON NEG?(3A)?RESIST?  
 L33 25 SEA FILE=HCAPLUS ABB=ON L31 AND L32

=> D L33 ALL 1-25 HITSTR

L33 ANSWER 1 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:272171 HCAPLUS

TI **Negative-working resist** composition containing  
 alicyclic compound for x-ray and electron beam

IN Takahashi, Omote; Yasunami, Shoichiro; Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 94 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C07C031-137; C07C035-31; C07C035-37; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)

Section cross-reference(s): 24

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003107705	A2	20030409	JP 2001-302633	20010928
PRAI	JP 2001-302633		20010928		

AB The **neg.-working resist** compn. comprises (A) a  
 photoacid, (B) an alkali-sol. resin, (C) a compd. having an alicyclic ring  
 and generating water upon the interaction with an acid, and (D) a basic  
 compd. The use of the alicyclic compd. provided both high sensitivity and  
 high resolu.

ST resist compn contg alicyclic compd x ray electron beam

IT Electron beam **resists****Photoresists****Resists****X-ray resists**(neg.-working **resist** compn. contg. alicyclic compd.  
for x-ray and electron beam)

IT 80-04-6 87-89-8 98-52-2 100-97-0 479-59-4 484-47-9 529-32-8  
556-48-9 668-94-0 707-37-9 768-95-6 775-64-4 824-13-5  
1194-21-4 1194-44-1 1632-68-4 2041-15-8 3001-72-7 4975-73-9  
4985-24-4 5001-18-3 5807-14-7 6674-22-2 10347-01-0 10385-78-1  
20534-58-1 **24979-69-9**, 3-Hydroxystyrene homopolymer  
24979-70-2, p-Hydroxystyrene homopolymer 24979-74-6,  
4-Hydroxystyrene-styrene copolymer 24980-18-5, o-Hydroxystyrene  
homopolymer 31818-42-5 34413-35-9 76921-55-6 84030-20-6  
145819-91-6 **149614-53-9**, 3-Hydroxystyrene-4-Hydroxystyrene  
copolymer 161679-94-3 171429-59-7 185502-14-1 321164-59-4  
**396098-38-7** 473273-00-6 **477705-24-1**

RL: TEM (Technical or engineered material use); USES (Uses)

(neg.-working **resist** compn. contg. alicyclic compd.  
for x-ray and electron beam)

IT **241806-75-7 241806-76-8 258341-99-0**  
**258872-05-8 312386-77-9 338445-31-1**  
**341548-86-5 343629-51-6 437652-80-7**  
**437652-81-8**

RL: CAT (Catalyst use); USES (Uses)

(photoacid; neg.-working **resist** compn. contg.  
alicyclic compd. for x-ray and electron beam)

IT **24979-69-9**, 3-Hydroxystyrene homopolymer **149614-53-9**,  
3-Hydroxystyrene-4-Hydroxystyrene copolymer **396098-38-7**.  
**477705-24-1**

RL: TEM (Technical or engineered material use); USES (Uses)

(neg.-working **resist** compn. contg. alicyclic compd.  
for x-ray and electron beam)

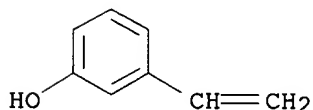
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



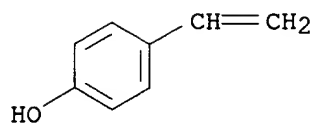
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

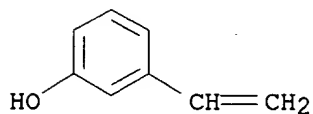
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



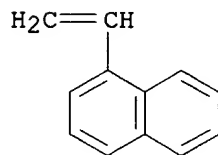
RN 396098-38-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 826-74-4

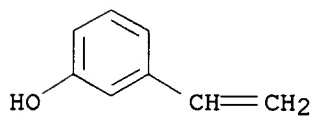
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



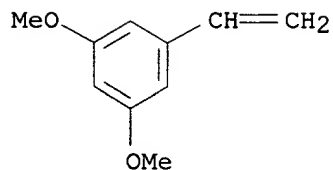
RN 477705-24-1 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-3,5-dimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 40243-87-6

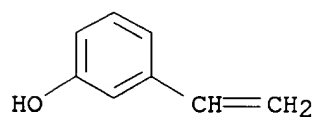
CMF C10 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 241806-75-7 241806-76-8 258341-99-0  
 258872-05-8 312386-77-9 338445-31-1  
 341548-86-5 343629-51-6 437652-80-7  
 437652-81-8

RL: CAT (Catalyst use); USES (Uses)

(photoacid; **neg.**-working **resist** compn. contg.  
 alicyclic compd. for x-ray and electron beam)

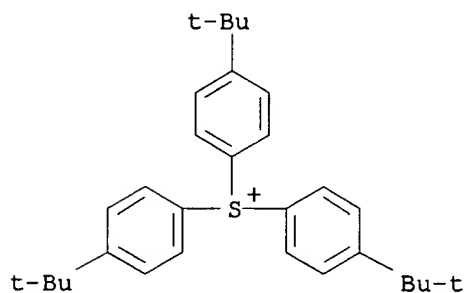
RN 241806-75-7 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
 NAME)

CM 1

CRN 91815-56-4

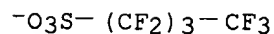
CMF C30 H39 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



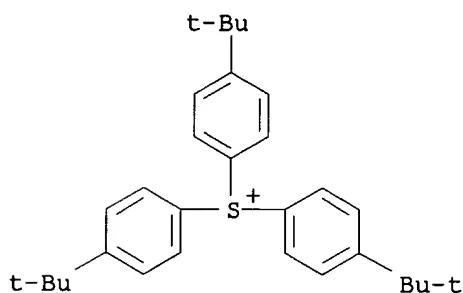
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

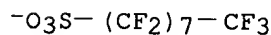
CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S



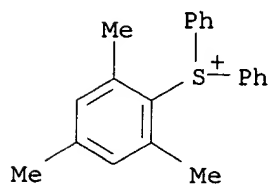
RN 258341-99-0 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

CMF C21 H21 S



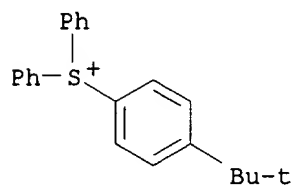
CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S $^{-}\text{O}_3\text{S}-(\text{CF}_2)_7-\text{CF}_3$ 

RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0  
CMF C22 H23 S

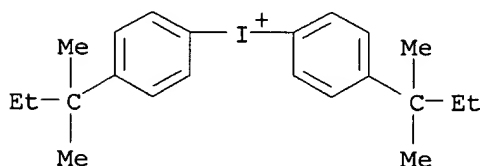
CM 2

CRN 45187-15-3  
CMF C4 F9 O3 S $^{-}\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$ 

RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

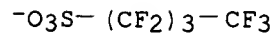
CM 1

CRN 249300-51-4  
CMF C22 H30 I

CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



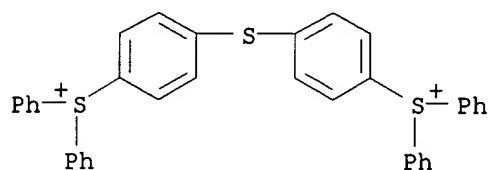
RN 338445-31-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

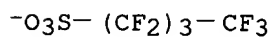
CMF C36 H28 S3



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



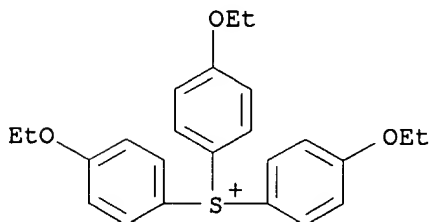
RN 341548-86-5 HCAPLUS

CN Sulfonium, tris(4-ethoxyphenyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

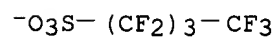
CM 1

CRN 220391-62-8

CMF C24 H27 O3 S



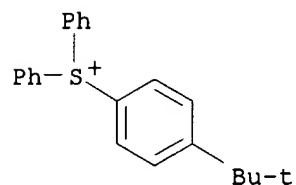
CM 2

CRN 45187-15-3  
CMF C4 F9 O3 S

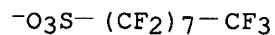
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0  
CMF C22 H23 S

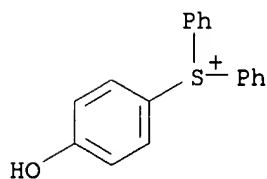
CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S

RN 437652-80-7 HCAPLUS

CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108493-51-2  
CMF C18 H15 O S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}O_3S-(CF_2)_7-CF_3$ 

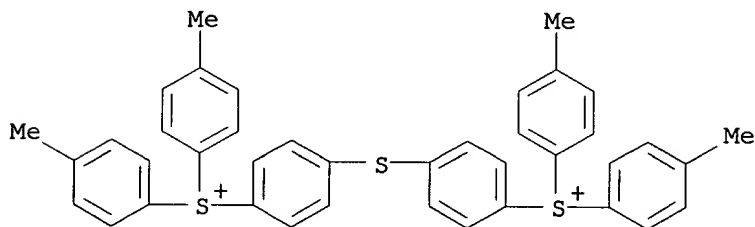
RN 437652-81-8 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-1-decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 222722-48-7

CMF C40 H36 S3



CM 2

CRN 126105-34-8

CMF C10 F21 O3 S

 $^{-}O_3S-(CF_2)_9-CF_3$ 

L33 ANSWER 2 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:272170 HCAPLUS

TI **Negative-working resist** composition for x-ray and electronic beam

IN Takahashi, Omote; Yasunami, Shoichiro; Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 41 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

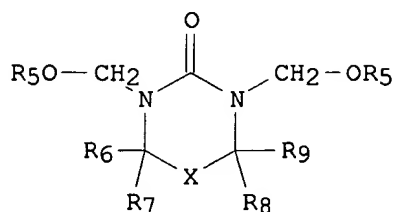
ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

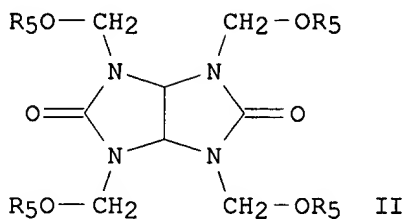
Section cross-reference(s): 38, 25

FAN.CNT 1

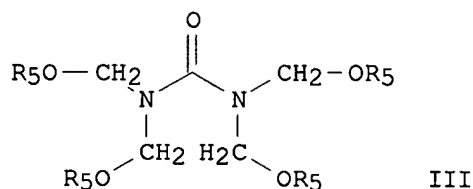
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003107704	A2	20030409	JP 2001-301492	20010928
PRAI	JP 2001-301492		20010928		
GI					



I



II



III

- AB The **neg.**-working **resist** compn. comprises (a) a photoacid, (b) a crosslinker activated by an acid, and (c) an alkali-sol. resin represented by [H<sub>2</sub>C-CR<sub>0</sub>(L-C<sub>6</sub>R<sub>1</sub>R<sub>2</sub>R<sub>3</sub>R<sub>4</sub>OH)] (R<sub>0</sub> = H, Me; L = divalent bonding group; and R<sub>1</sub>-4 = alkyl, alkoxy, acetoxy, etc.). The crosslinker may be represented by I, II, or III (R<sub>5</sub> = H, alkyl, acyl; R<sub>6</sub>-9 = H, OH, alkyl, etc.; and X = single bond, methylene, O). The compn. further contains a basic compd.
- ST x ray electron beam resist compn; photoacid crosslinker alkali sol resin basic compd resist compn
- IT Electron beam **resists**  
X-ray **resists**  
(**neg.**-working **resist** compn. for x-ray and electronic beam)
- IT 31872-14-7 508220-50-6 **508220-51-7** 508220-52-8 508220-54-0  
508220-56-2 508220-58-4 508220-61-9 508220-62-0 508220-64-2  
508220-66-4 508220-68-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(alkali-sol. resin; **neg.**-working **resist** compn. for x-ray and electronic beam)
- IT 100-97-0, Hexamethylenetetramine 110-89-4, Piperidine 280-48-8  
484-47-9, 2,4,5-Triphenylimidazole 1122-58-3, 4-Dimethylaminopyridine  
3001-72-7 24544-04-5, 2,6-Diisopropylaniline 122936-95-2  
RL: TEM (Technical or engineered material use); USES (Uses)  
(basic compd.; **neg.**-working **resist** compn. for x-ray and electronic beam)
- IT 5395-50-6 13747-15-4 17464-88-9 65952-06-9 508220-69-7  
508220-70-0 508220-71-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinker; **neg.**-working **resist** compn. for x-ray and electronic beam)
- IT 138529-81-4 138529-84-7 **144317-44-2** **240424-21-9**

241806-75-7 241806-76-8 258341-99-0  
258872-05-8 312386-77-9 338445-31-1  
341548-86-5 343629-51-6 437652-80-7  
437652-81-8

RL: CAT (Catalyst use); USES (Uses)  
(photoacid; **neg.**-working **resist** compn. for x-ray  
and electronic beam)

IT 244057-73-6P

RL: PNU (Preparation, unclassified); PREP (Preparation)  
(prepn. of photoacid for **neg.**-working **resist**  
compn.)

IT 79-30-1, Iso-butyric acid chloride 123-30-8, p-Aminophenol 127-09-3,  
Sodium acetate 110726-28-8, Trisp-PA

RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of photoacid for **neg.**-working **resist**  
compn.)

IT 508220-51-7

RL: TEM (Technical or engineered material use); USES (Uses)  
(alkali-sol. resin; **neg.**-working **resist** compn. for  
x-ray and electronic beam)

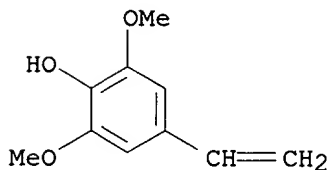
RN 508220-51-7 HCAPLUS

CN Phenol, 4-ethenyl-2,6-dimethoxy-, polymer with 3-ethenylphenol (9CI) (CA  
INDEX NAME)

CM 1

CRN 28343-22-8

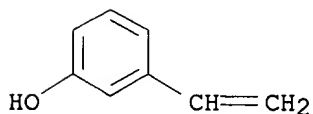
CMF C10 H12 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 144317-44-2 240424-21-9 241806-75-7

241806-76-8 258341-99-0 258872-05-8

312386-77-9 338445-31-1 341548-86-5

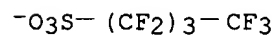
343629-51-6 437652-80-7 437652-81-8

RL: CAT (Catalyst use); USES (Uses)  
(photoacid; **neg.**-working **resist** compn. for x-ray  
and electronic beam)

RN 144317-44-2 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

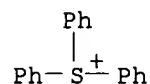
CM 1

CRN 45187-15-3  
 CMF C4 F9 O3 S



CM 2

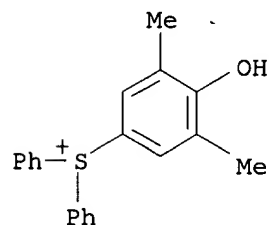
CRN 18393-55-0  
 CMF C18 H15 S



RN 240424-21-9 HCAPLUS  
 CN Sulfonium, (4-hydroxy-3,5-dimethylphenyl)diphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

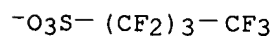
CM 1

CRN 127279-85-0  
 CMF C20 H19 O S



CM 2

CRN 45187-15-3  
 CMF C4 F9 O3 S



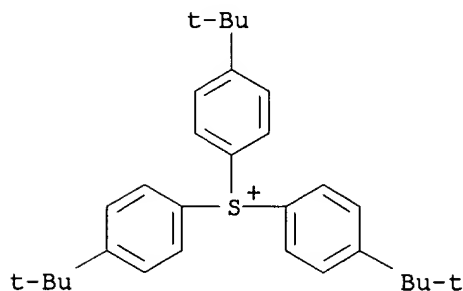
RN 241806-75-7 HCAPLUS  
 CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with

1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$\text{-O}_3\text{S- (CF}_2\text{)}_3\text{-CF}_3$

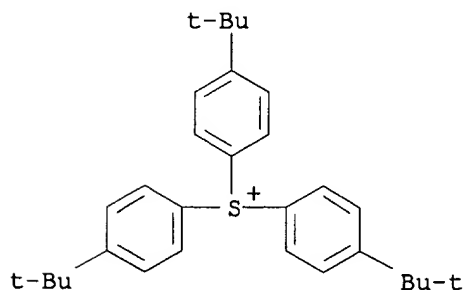
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_7\text{CF}_3$ 

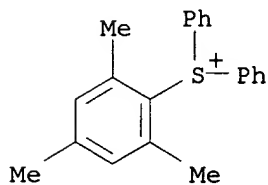
RN 258341-99-0 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

CMF C21 H21 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_7\text{CF}_3$ 

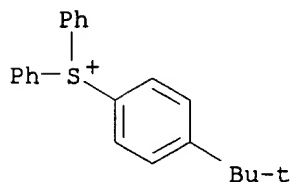
RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$ 

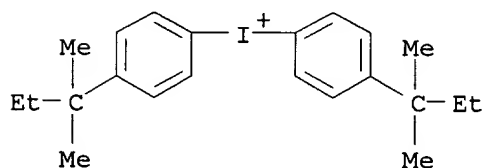
RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 249300-51-4

CMF C22 H30 I



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$ 

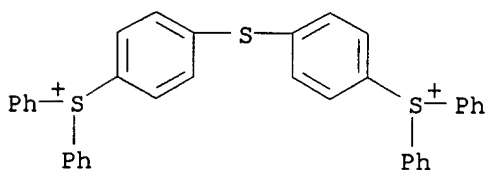
RN 338445-31-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:2) (9CI) (CA INDEX  
NAME)

CM 1

CRN 74227-34-2

CMF C36 H28 S3



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$

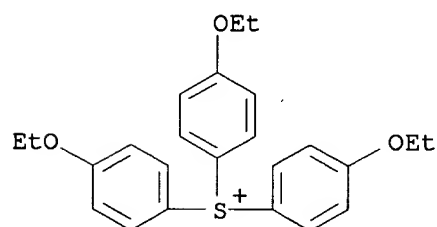
RN 341548-86-5 HCAPLUS

CN Sulfonium, tris(4-ethoxyphenyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 220391-62-8

CMF C24 H27 O3 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$

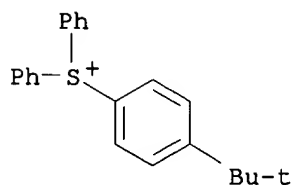
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



CM 2



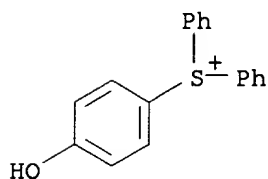
CRN 45298-90-6  
CMF C8 F17 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_7-\text{CF}_3$

RN 437652-80-7 HCAPLUS  
CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108493-51-2  
CMF C18 H15 O S



CM 2

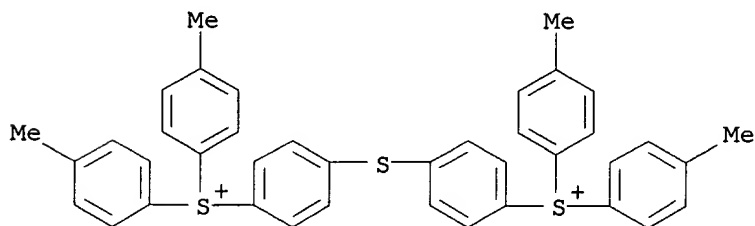
CRN 45298-90-6  
CMF C8 F17 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_7-\text{CF}_3$

RN 437652-81-8 HCAPLUS  
CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-1-  
decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 222722-48-7  
CMF C40 H36 S3



CM 2

CRN 126105-34-8

CMF C10 F21 O3 S

-O<sub>3</sub>S- (CF<sub>2</sub>)<sub>9</sub>-CF<sub>3</sub>

L33 ANSWER 3 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:200566 HCAPLUS

DN 138:245598

TI Negative-working chemically amplified electron beam or x-ray resist composition with controlled water content

IN Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 82 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08F012-14; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003076020	A2	20030314	JP 2001-271992	20010907
PRAI	JP 2001-271992		20010907		

AB The title compn. contains an electron beam- or x-ray-sensitive acid generator, an alkali solubilizable resin, an acid-sensitive crosslinking agent, and an org. basic compd., wherein the water content in the compn. is .ltoreq.0.5%. The compn. provides the resist of high resolu. and high evenness on the line width and is suitable for use for semiconductor device fabrication.

ST neg electron beam x ray resist compn water

IT Sulfonic acids, reactions

RL: RCT (Reactant); RACT (Reactant or reagent)

(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT Electron beam **resists**X-ray **resists**

(neg.-working, chem. amplified; neg.-working chem. amplified electron beam or x-ray resist compn. with controlled water content)

IT 2049-95-8, tert-Amylbenzene 7681-11-0, Potassium iodide, reactions

270564-02-8, Tetramethylammonium pentafluorobenzenesulfonate

RL: RCT (Reactant); RACT (Reactant or reagent)

(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT **279218-84-7P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT **258341-98-9P**, Di(4-tert-amylphenyl)iodonium pentafluorobenzenesulfonate

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT **66003-78-9** 157826-08-9

RL: TEM (Technical or engineered material use); USES (Uses)  
(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT 50-00-0, Formaldehyde, reactions 67-56-1, Methanol, reactions  
110726-28-8, Trisp PA

RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking agent; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT 161679-94-3P 162846-57-3P 185502-14-1P 185502-15-2P 197087-74-4P  
425422-24-8DP, 3,4-Dimethoxystyrene-4-tert-butoxystyrene copolymer,  
hydrolyzed 501371-36-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinking agent; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT 484-47-9, 2,4,5-Triphenylimidazole 1122-58-3, 4-(Dimethylamino)pyridine  
3001-72-7, 1,5-Diazabicyclo[4.3.0]non-5-ene 6674-22-2,  
1,8-Diazabicyclo[5.4.0]undec-7-ene 21545-54-0, 1-Cyclohexyl-3-(2-  
morpholinoethyl)thiourea

RL: TEM (Technical or engineered material use); USES (Uses)  
(org. basic compd.; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT 24979-74-6P 105649-65-8DP, 3-tert-Butoxystyrene homopolymer, hydrolyzed  
105649-65-8P, 3-tert-Butoxystyrene homopolymer **149614-53-9P**  
202829-91-2P 321164-59-4P 345212-27-3P **345212-30-8P**  
345212-56-8P 345212-61-5P 345212-75-1P 345212-78-4P 345212-82-0P  
345212-92-2P **349619-43-8P 501371-38-6P**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(resin; neg.-working chem. amplified electron beam or x-ray resist compn.)

IT **279218-84-7P**

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

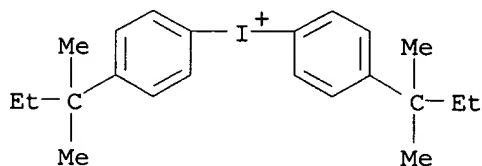
RN 279218-84-7 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1) (9CI) (CA  
INDEX NAME)

CM 1

CRN 249300-51-4

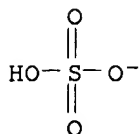
CMF C22 H30 I



CM 2

CRN 14996-02-2

CMF H O4 S

IT **258341-98-9P**, Di(4-tert-amylphenyl)iodonium

pentafluorobenzenesulfonate

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

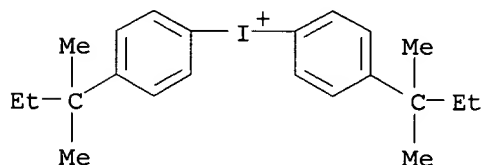
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

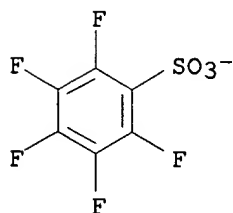
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S

IT **66003-78-9**

RL: TEM (Technical or engineered material use); USES (Uses)

(acid generator; neg.-working chem. amplified electron beam or x-ray resist compn.)

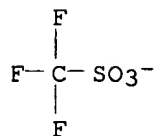
RN 66003-78-9 HCAPLUS

CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

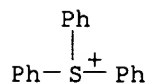
CMF C F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



IT 149614-53-9P 345212-30-8P 349619-43-8P

501371-38-6P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; neg.-working chem. amplified electron beam or x-ray resist compn.)

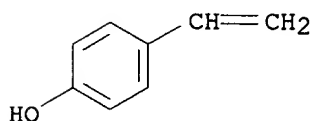
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

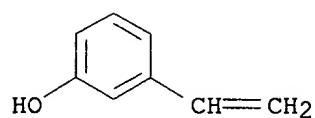
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



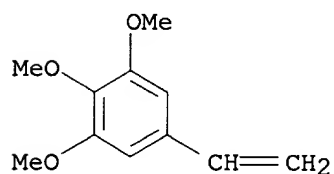
RN 345212-30-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,2,3-trimethoxybenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 13400-02-7

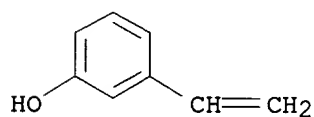
CMF C11 H14 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



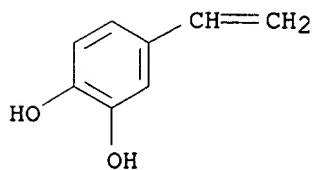
RN 349619-43-8 HCAPLUS

CN 1,2-Benzenediol, 4-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX  
NAME)

CM 1

CRN 6053-02-7

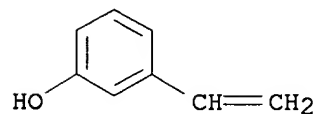
CMF C8 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



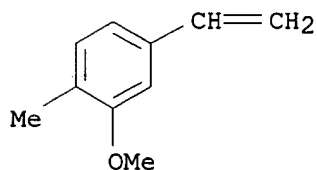
RN 501371-38-6 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-2-methoxy-1-methylbenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 501371-37-5

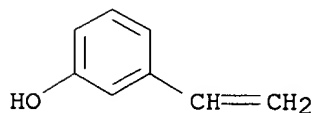
CMF C10 H12 O



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 4 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:167237 HCAPLUS

DN 138:212796

TI Negative-working electron beam or x-ray resist compositions containing  
specific acid generator

IN Yasunami, Shoichiro; Nishiyama, Fumiyuki; Hyakuta, Atsushi

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 47 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-004

ICS C08F012-22; G03F007-038; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003066596	A2	20030305	JP 2001-254879	20010824
	US 2003054287	A1	20030320	US 2002-120551	20020412
PRAI	JP 2001-115596	A	20010413		
	JP 2001-169770	A	20010605		
	JP 2001-254879	A	20010824		
OS	MARPAT 138:212796				
AB	The title compn. contains an alkali-sol. polymer, an acid-sensitive crosslinking agent, an actinic ray- or radiation-sensitive sulfonimide-based acid generator, wherein the acid generator has structure R1a-N(-SO2-R2a)(-SO2-R3a) ( R1a-3a = alkyl, cycloalkyl, aryl, aralkyl, etc.). The compn. shows the high sensitivity and provides the resist showing high resolu., good pattern profile, and the improved pattern line edge roughness.				
ST	neg working electron beam x ray resist compn				
IT	Electron beam <b>resists</b> X-ray <b>resists</b> (neg.-working electron beam or x-ray resists compns. contg. specific acid generator)				
IT	75-59-2, Tetramethylammonium hydroxide 832-53-1, Pentafluorobenzenesulfonyl chloride RL: RCT (Reactant); RACT (Reactant or reagent) (acid generator; neg.-working electron beam or x-ray resists compns.)				
IT	270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent) (acid generator; neg.-working electron beam or x-ray resists compns.)				
IT	1886-74-4P 22040-25-1P 37595-74-7P 52331-16-5P <b>84563-54-2P</b> <b>144317-44-2P</b> 145100-50-1P <b>153698-46-5P</b> <b>177786-98-0P</b> <b>258341-98-9P</b> <b>335385-81-4P</b> 500004-85-3P RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acid generator; neg.-working electron beam or x-ray resists compns.)				
IT	162846-57-3P RL: MOA (Modifier or additive use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses) (crosslinking agent; neg.-working electron beam or x-ray resists compns.)				
IT	161679-94-3P 161679-95-4P 161679-98-7P 185502-11-8P 185502-14-1P 185502-15-2P 197087-73-3P 197087-74-4P RL: MOA (Modifier or additive use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses) (crosslinking agent; neg.-working electron beam or x-ray resists compns.)				
IT	50-00-0, Formaldehyde, reactions 67-56-1, Methanol, reactions 110726-28-8, Tris-PA (phenol) RL: RCT (Reactant); RACT (Reactant or reagent) (crosslinking agent; neg.-working electron beam or x-ray resists compns.)				
IT	71-43-2, Benzene, reactions 945-51-7, Diphenylsulfoxide 2049-95-8, tert-Amylbenzene 7664-93-9, Sulfuric acid, reactions 7758-05-6, Potassium iodate 12027-06-4, Ammonium iodide RL: RCT (Reactant); RACT (Reactant or reagent) (neg.-working electron beam or x-ray resists compns.)				
IT	<b>3744-08-9P</b> , Triphenylsulfonium iodide <b>258342-09-5P</b>				



RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(neg.-working electron beam or x-ray resists compns.)

IT 24979-69-9P 24979-70-2P 24979-74-6P 135648-85-0P  
219838-71-8P 321164-59-4P 345212-59-1P 396098-38-7P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; neg.-working electron beam or x-ray resists compns.)

IT 84563-54-2P 144317-44-2P 153698-46-5P  
177786-98-0P 258341-98-9P 335385-81-4P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid generator; neg.-working electron beam or x-ray resists compns.)

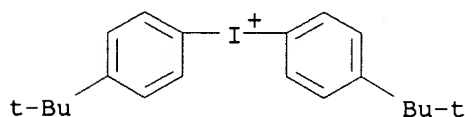
RN 84563-54-2 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 61267-44-5

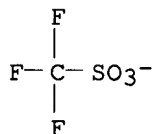
CMF C20 H26 I



CM 2

CRN 37181-39-8

CMF C F3 O3 S



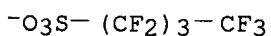
RN 144317-44-2 HCAPLUS

CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 45187-15-3

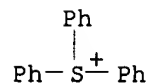
CMF C4 F9 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



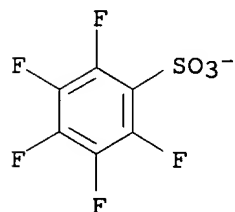
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

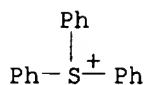
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



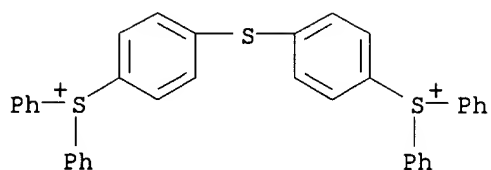
RN 177786-98-0 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
trifluoromethanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

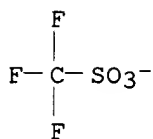
CMF C36 H28 S3



CM 2

CRN 37181-39-8

CMF C F3 O3 S



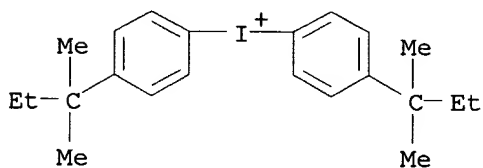
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

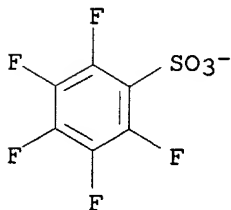
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



RN 335385-81-4 HCAPLUS  
 CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, 1-octanesulfonate (9CI) (CA INDEX NAME)

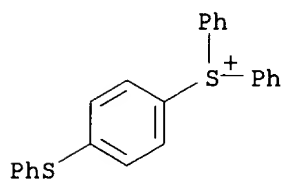
CM 1

CRN 60283-46-7  
 CMF C8 H17 O3 S

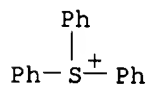
$\text{Me}^-(\text{CH}_2)_7-\text{SO}_3^-$

CM 2

CRN 47480-44-4  
 CMF C24 H19 S2



IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**  
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)  
 (neg.-working electron beam or x-ray resists compns.)  
 RN 3744-08-9 HCAPLUS  
 CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)

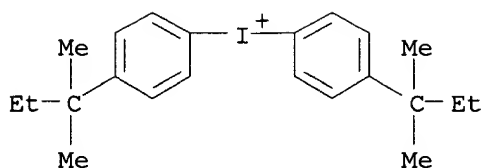


$\text{I}^-$

RN 258342-09-5 HCAPLUS  
 CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

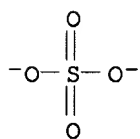
CRN 249300-51-4  
 CMF C22 H30 I



CM 2

CRN 14808-79-8

CMF 04 S



IT 24979-69-9P 396098-38-7P

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(resin; neg.-working electron beam or x-ray resists compns.)

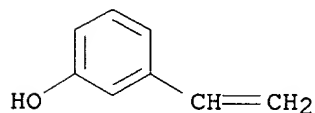
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



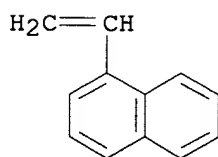
RN 396098-38-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 826-74-4

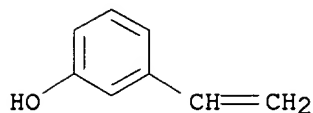
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 5 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:17554 HCAPLUS

DN 138:98190

TI Chemically-amplified **negative-working resist**  
compositions for processing with electron beam or x-ray

IN Takahashi, Akira; Shirakawa, Hiroshi; Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 57 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-004

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 28

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2003005355	A2	20030108	JP 2001-186705	20010620
PRAI	JP 2001-186705		20010620		
OS	MARPAT 138:98190				
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The compns. comprise (A) compds. generating acids on irradiation with electron beam or x-ray, (B) polymers sol. in aq. alk. solns., and (D) .gtoreq.1 compds. selected from heterocycles defined by 8 Markush structures such as I, II, III, IV, V, and VI (R11 = H, aliph., arom., mixed, or heterocyclic amine, amide, imide, ester, halo, halogen substituted alkyl or aryl, OH, carboxyl, thiol, cyano, nitro, formyl, sulfonyl, sulfonamide, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl; R12 = H, arom. or heterocyclic amine, halogen-substituted alkyl or aryl, OH, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl, ester, carbonate ester). The resists have excellent stability against post exposure bake. Resists with high resolution and excellent profiles are obtained.

ST chem amplified **neg** working **photoresist** electron beam;  
x ray **neg** working **photoresist**; heterocyclic additive

neg working photoresist; pteridine deriv additive  
neg working photoresist

IT **Negative photoresists**  
(chem.-amplified; chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

IT 130501-59-6P, 4-Hydroxystyrene homopolymer acetate 173786-80-6DP,  
4-Acetoxystryrene-4-methoxystyrene copolymer, hydrolyzed 349647-07-0P,  
Acrylonitrile-2-hydroxyethyl acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]ethyl methacrylate copolymer  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

IT 110726-28-8, 1-[.alpha.-Methyl-.alpha.-(4-hydroxyphenyl)ethyl]-4-[.alpha.,.alpha.-bis(4-hydroxyphenyl)ethyl]benzene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

IT 146-14-5 146-17-8, Riboflavin 5'-(dihydrogen phosphate) 487-21-8,  
2,4(1H,3H)-Pteridinedione 490-59-5, Benzo[g]pteridine-2,4(1H,3H)-dione  
945-24-4 1005-24-9 1086-80-2 1910-42-5 2236-60-4  
**24979-69-9** 24979-70-2 24979-74-6 24980-18-5 25535-16-4  
28721-76-8 31722-01-7 86690-04-2 **149614-53-9** 321164-59-4  
345212-27-3 **396098-38-7 437652-81-8**  
**477705-24-1** 482636-16-8 482636-17-9 482636-18-0  
482636-19-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

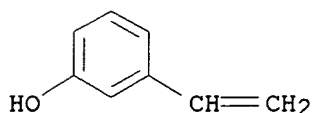
IT 162846-57-3P  
RL: PNU (Preparation, unclassified); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(crosslinking agent; chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

IT 161679-94-3P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinking agent; chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

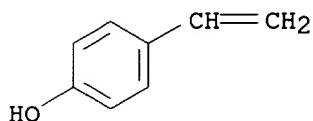
IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agent; chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine profile patterns by processing with electron beam or x-ray)

IT 39153-56-5 138529-81-4 138529-84-7 **241806-75-7**  
**241806-76-8 258341-99-0 258872-05-8**  
**312386-77-9 338445-31-1 341548-86-5**  
**343629-51-6 437652-80-7 482636-20-4**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(photoacid generator; chem.-amplified **neg.-working resist** compns. contg. heterocyclic compds. for obtaining fine

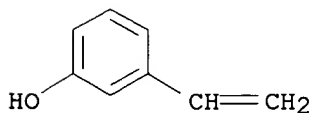
profile patterns by processing with electron beam or x-ray)  
IT 24979-69-9 149614-53-9 396098-38-7  
437652-81-8 477705-24-1  
RL: TEM (Technical or engineered material use); USES (Uses)  
(chem.-amplified **neg.**-working **resist** compns. contg.  
heterocyclic compds. for obtaining fine profile patterns by processing  
with electron beam or x-ray)  
RN 24979-69-9 HCAPLUS  
CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 620-18-8  
CMF C8 H8 O



RN 149614-53-9 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 2628-17-3  
CMF C8 H8 O

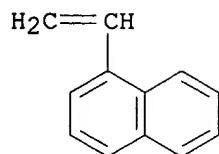


CM 2  
  
CRN 620-18-8  
CMF C8 H8 O



RN 396098-38-7 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 826-74-4  
CMF C<sub>12</sub> H<sub>10</sub>

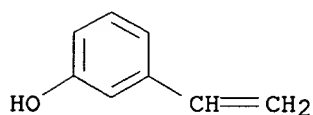




CM 2

CRN 620-18-8

CMF C8 H8 O



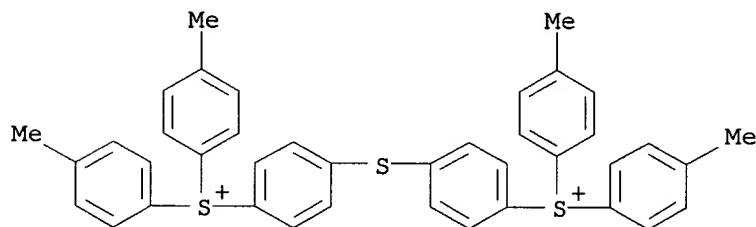
RN 437652-81-8 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-1-  
decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 222722-48-7

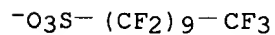
CMF C40 H36 S3



CM 2

CRN 126105-34-8

CMF C10 F21 O3 S

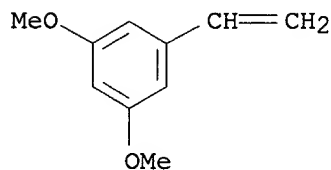


RN 477705-24-1 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-3,5-dimethoxybenzene (9CI) (CA  
INDEX NAME)

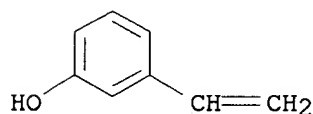
CM 1

CRN 40243-87-6  
CMF C10 H12 O2



CM 2

CRN 620-18-8  
CMF C8 H8 O



IT 241806-75-7 241806-76-8 258341-99-0  
258872-05-8 312386-77-9 338445-31-1  
341548-86-5 343629-51-6 437652-80-7  
482636-20-4

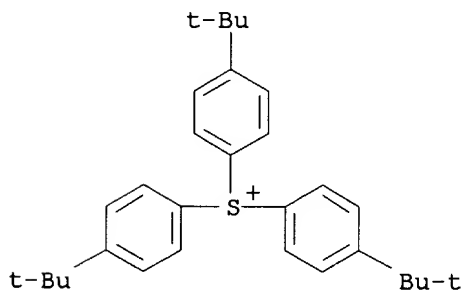
RL: TEM (Technical or engineered material use); USES (Uses)  
(photoacid generator; chem.-amplified **neg.**-working  
**resist** compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

RN 241806-75-7 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 91815-56-4  
CMF C30 H39 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_3^{-}\text{CF}_3$ 

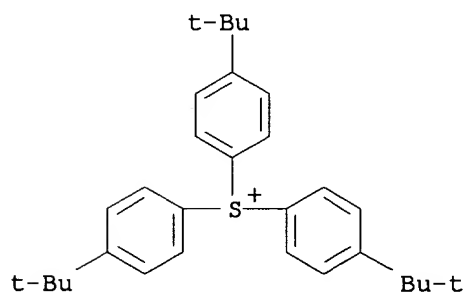
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_7^{-}\text{CF}_3$ 

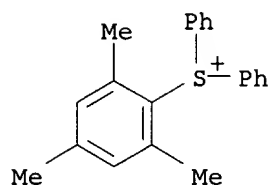
RN 258341-99-0 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

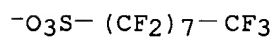
CMF C21 H21 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S



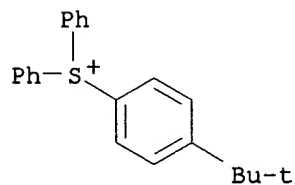
RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0

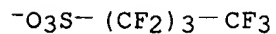
CMF C22 H23 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



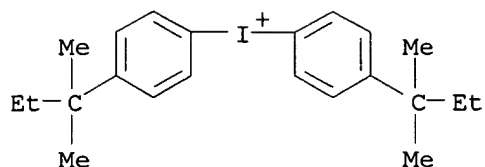
RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 249300-51-4

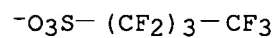
CMF C22 H30 I



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



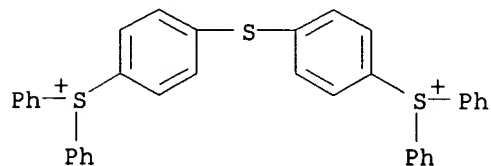
RN 338445-31-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:2) (9CI) (CA INDEX  
NAME)

CM 1

CRN 74227-34-2

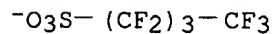
CMF C36 H28 S3



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



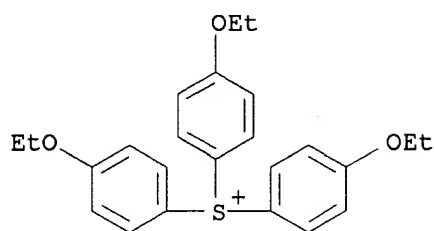
RN 341548-86-5 HCAPLUS

CN Sulfonium, tris(4-ethoxyphenyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 220391-62-8

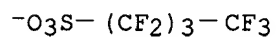
CMF C24 H27 O3 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



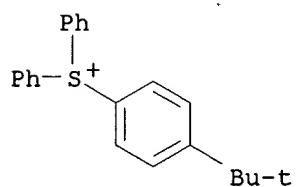
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
 (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0

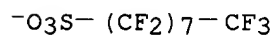
CMF C22 H23 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S



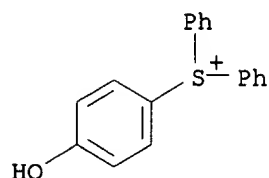
RN 437652-80-7 HCAPLUS

CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
 (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108493-51-2

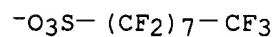
CMF C18 H15 O S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S



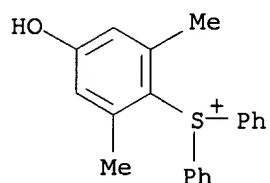
RN 482636-20-4 HCAPLUS

CN Sulfonium, (4-hydroxy-2,6-dimethylphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 336609-07-5

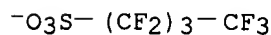
CMF C20 H19 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



L33 ANSWER 6 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2003:14489 HCAPLUS

DN 138:98186

TI Chemically-amplified **negative-working resist**  
compositions for processing with electron beam or x-ray  
IN Takahashi, Omote; Shirakawa, Hiroshi; Adegawa, Yutaka  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 57 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-004

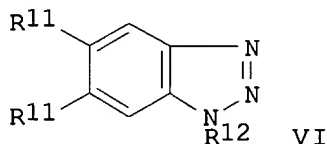
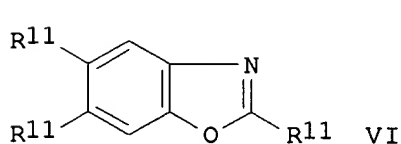
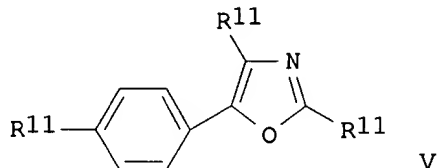
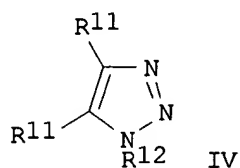
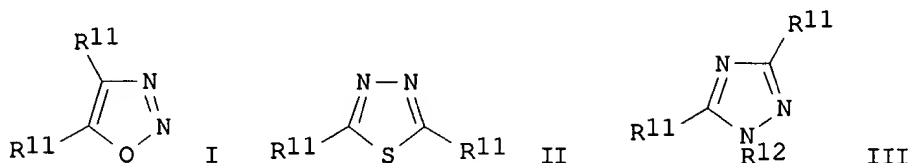
ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 28

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2003005356	A2	20030108	JP 2001-186786	20010620
PRAI	JP 2001-186786		20010620		
OS	MARPAT 138:98186				
GI					



AB The compns. comprise (A) compds. generating acids on irradiation with electron beam or x-ray, (B) polymers sol. in aq. alk. solns., and (D) compds. selected from heterocycles defined by 9 Markush structures such as I, II, III, IV, V, VI, and VII (R11 = H, aliph., arom., mixed, or heterocyclic amine, amide, imide, ester, halo, halogen substituted alkyl or aryl, OH, carboxyl, thiol, cyano, nitro, formyl, sulfonyl, sulfonamide, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl; R12 = H, arom. or heterocyclic amine, halogen-substituted alkyl or aryl, OH, acyl, aroyl, alkyl, alkyloxy, alkenyloxy, heterocyclic, aryl, alkenyl, aralkyl, ester, carbonate ester). The resists have excellent stability against post exposure bake. Resists with high resolution and excellent profiles are obtained.

ST chem amplified **neg** working **photoresist** electron beam;  
 x ray **neg** working **photoresist**; triazole additive  
**neg** working **photoresist**; heterocyclic additive  
**neg** working **photoresist**

IT **Negative photoresists**  
 (chem.-amplified; chem.-amplified **neg**-working **resist**  
 compns. contg. heterocyclic compds. for obtaining fine profile patterns)



by processing with electron beam or x-ray)

IT 130501-59-6P, 4-Hydroxystyrene homopolymer acetate 173786-80-6DP,  
4-Acetoxystryrene-4-methoxystyrene copolymer, hydrolyzed 349647-07-0P,  
Acrylonitrile-2-hydroxyethyl acrylate-2-[(4'-hydroxyphenyl)carbonyloxy]eth  
yl methacrylate copolymer  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(chem.-amplified **neg.**-working **resist** compns. contg.  
heterocyclic compds. for obtaining fine profile patterns by processing  
with electron beam or x-ray)

IT 110726-28-8, 1-[.alpha.-Methyl-.alpha.-(4-hydroxyphenyl)ethyl]-4-  
[.alpha.,.alpha.-bis(4-hydroxyphenyl)ethyl]benzene  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(chem.-amplified **neg.**-working **resist** compns. contg.  
heterocyclic compds. for obtaining fine profile patterns by processing  
with electron beam or x-ray)

IT 92-71-7 1806-34-4 3073-87-8 3147-75-9 3864-99-1 4184-79-6  
7128-64-5 17472-96-7 **24979-69-9** 24979-70-2 24979-74-6  
24980-18-5 28539-02-8, 1H-Benzotriazole-1-methanol 148044-19-3  
**149614-53-9** 150405-69-9 321164-59-4 345212-27-3  
**396098-38-7 477705-24-1** 482654-95-5 482654-96-6  
482654-97-7 482654-98-8 482654-99-9 482655-00-5 482655-01-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(chem.-amplified **neg.**-working **resist** compns. contg.  
heterocyclic compds. for obtaining fine profile patterns by processing  
with electron beam or x-ray)

IT 162846-57-3P  
RL: PNU (Preparation, unclassified); RCT (Reactant); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)  
(crosslinking agent; chem.-amplified **neg.**-working  
**resist** compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

IT 161679-94-3P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(crosslinking agent; chem.-amplified **neg.**-working  
**resist** compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agent; chem.-amplified **neg.**-working  
**resist** compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

IT 39153-56-5 138529-81-4 138529-84-7 **241806-75-7**  
**241806-76-8 258341-99-0 258872-05-8**  
**312386-77-9 338445-31-1 341548-86-5**  
**343629-51-6 437652-80-7 437652-81-8**  
**482636-20-4**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(photoacid generator; chem.-amplified **neg.**-working  
**resist** compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

IT **24979-69-9 149614-53-9 396098-38-7**  
**477705-24-1**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(chem.-amplified **neg.**-working **resist** compns. contg.  
heterocyclic compds. for obtaining fine profile patterns by processing

with electron beam or x-ray)

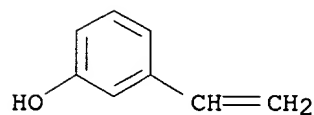
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



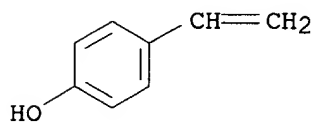
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

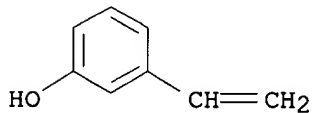
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



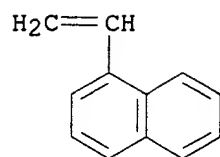
RN 396098-38-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 826-74-4

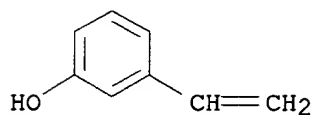
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



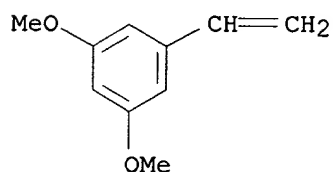
RN 477705-24-1 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-3,5-dimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 40243-87-6

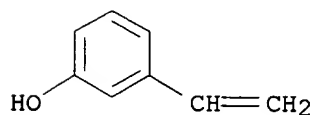
CMF C10 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 241806-75-7 241806-76-8 258341-99-0  
258872-05-8 312386-77-9 338445-31-1  
341548-86-5 343629-51-6 437652-80-7  
437652-81-8 482636-20-4

RL: TEM (Technical or engineered material use); USES (Uses)  
(photoacid generator; chem.-amplified **neg.**-working

resist compns. contg. heterocyclic compds. for obtaining fine  
profile patterns by processing with electron beam or x-ray)

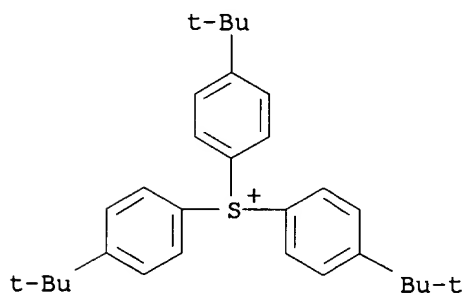
RN 241806-75-7 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$

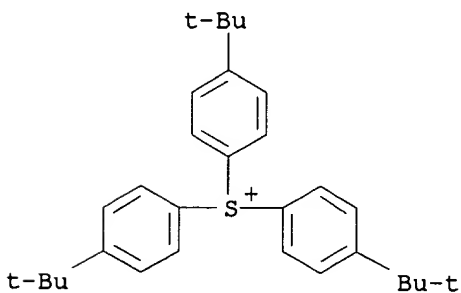
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_7\text{CF}_3$ 

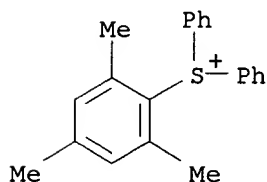
RN 258341-99-0 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

CMF C21 H21 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_7\text{CF}_3$ 

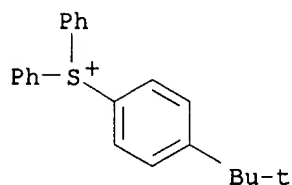
RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



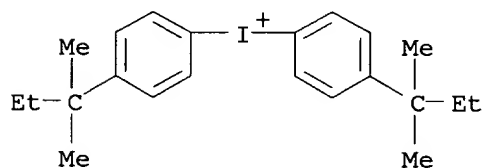
CM 2

CRN 45187-15-3  
CMF C4 F9 O3 S $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_3\text{CF}_3$ 

RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 249300-51-4  
CMF C22 H30 I

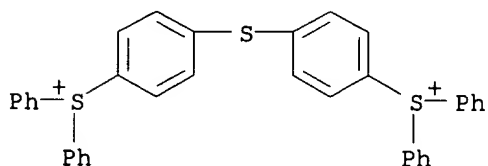
CM 2

CRN 45187-15-3  
CMF C4 F9 O3 S $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_3\text{CF}_3$ 

RN 338445-31-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:2) (9CI) (CA INDEX  
NAME)

CM 1

CRN 74227-34-2  
CMF C36 H28 S3

CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_3^{-}\text{CF}_3$ 

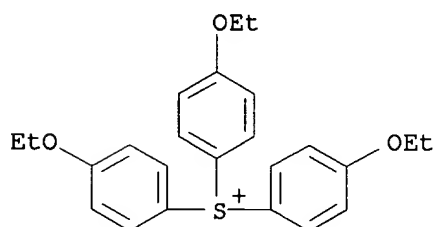
RN 341548-86-5 HCAPLUS

CN Sulfonium, tris(4-ethoxyphenyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 220391-62-8

CMF C24 H27 O3 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}^{-}(\text{CF}_2)_3^{-}\text{CF}_3$ 

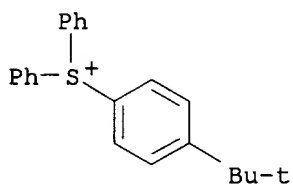
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



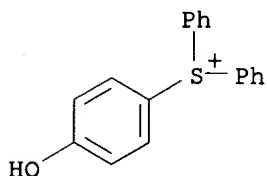
CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

RN 437652-80-7 HCAPLUS

CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108493-51-2  
CMF C18 H15 O S

CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

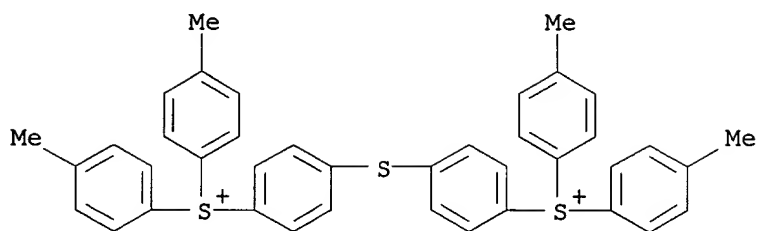
RN 437652-81-8 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-1-  
decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 222722-48-7  
CMF C40 H36 S3





CM 2

CRN 126105-34-8

CMF C10 F21 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_9-\text{CF}_3$ 

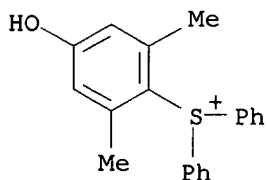
RN 482636-20-4 HCAPLUS

CN Sulfonium, (4-hydroxy-2,6-dimethylphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 336609-07-5

CMF C20 H19 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$ 

L33 ANSWER 7 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:976087 HCAPLUS

DN 138:47316

TI **Negative-working resist** composition for semiconductor  
device fabrication

IN Yasunami, Shoichiro; Takahashi, Omote; Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 39 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002372783	A2	20021226	JP 2001-182117	20010615
PRAI	JP 2001-182117		20010615		
AB	The compn. comprises (A) a compd. generating acid by actinic ray or radiation, (B) an alkali-sol. resin, (C) a crosslinking agent which crosslinks the resin by the action of an acid, and (D) a compd. having both .gtoreq.1 carboxyl group and .gtoreq.1 secondary or tertiary alicyclic amino group. The compn. shows high sensitivity and resolu., gives clear rectangular patterns, and is useful for semiconductor device fabrication.				
ST	<b>neg resist</b> alkali soluble resin crosslinking agent; resist amino carboxyl compd; semiconductor device fabrication radiation resist				
IT	Semiconductor device fabrication ( <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups for semiconductor device fabrication)				
IT	<b>Resists</b> (radiation-sensitive, <b>neg.</b> ; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	<b>153698-46-5P</b> , Triphenylsulfonium pentafluorobenzenesulfonate RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (acid generator; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	<b>270563-92-3 270563-93-4 270563-96-7 279244-39-2 349619-88-1 389859-77-2</b> RL: TEM (Technical or engineered material use); USES (Uses) (acid generator; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	51-17-2, Benzoimidazole 484-47-9, 2,4,5-Triphenylimidazole 1122-58-3, 4-Dimethylaminopyridine 5622-97-9 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (basic compd.; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	161679-94-3P RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (crosslinking agent; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4 RL: TEM (Technical or engineered material use); USES (Uses) (crosslinking agent; <b>neg. resist</b> contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)				
IT	51-35-4, 4-Hydroxyproline 147-85-3, L-Proline, uses 475-11-6, N-Methylproline 498-94-2, Isonipecotic acid 498-95-3, Nipecotic acid				

535-75-1, Pipecolic acid 567-36-2, 3-Hydroxyproline 609-36-9, Proline  
2762-32-5, 2-Piperazinecarboxylic acid 7730-87-2  
RL: MOA (Modifier or additive use); TEM (Technical or engineered material  
use); USES (Uses)  
(neg. resist contg. alkali-sol. resin, crosslinking  
agent, and compd. having amino and carboxyl groups)

IT 130501-59-6P, Poly(p-hydroxystyrene) acetate 173786-80-6DP,  
4-Acetoxy styrene-4-methoxy styrene copolymer, hydrolyzed  
**258341-98-9P** 349647-07-0P, Acrylonitrile-2-hydroxyethyl  
acrylate-2-[(4'-hydroxyphenyl) carbonyloxy]ethyl methacrylate copolymer  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(neg. resist contg. alkali-sol. resin, crosslinking  
agent, and compd. having amino and carboxyl groups)

IT **24979-69-9**, Poly(m-hydroxystyrene) 24979-70-2,  
Poly(p-hydroxystyrene) **149614-53-9**, m-Hydroxystyrene-p-  
hydroxystyrene copolymer 219838-71-8, Poly(3,5-dihydroxystyrene)  
345212-59-1 **396098-38-7** **473313-51-8** 478918-36-4  
**478918-37-5** 478918-38-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(neg. resist contg. alkali-sol. resin, crosslinking  
agent, and compd. having amino and carboxyl groups)

IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(prepn. and reaction with triphenylsulfonium iodide)

IT 162846-57-3P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(prepn. of crosslinking agent)

IT 50-00-0, Formaldehyde, reactions 110726-28-8, Trisp PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of crosslinking agent)

IT **258342-09-5P**  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(prepn. of diaminophenylidonium pentafluorobenzenesulfonate)

IT 2049-95-8, tert-Amylbenzene 7758-05-6, Potassium iodate  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of diaminophenylidonium pentafluorobenzenesulfonate)

IT 75-59-2, Tetramethylammonium hydroxide 832-53-1,  
Pentafluorobenzenesulfonyl chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of tetramethylammonium pentafluorobenzenesulfonate)

IT 71-43-2, Benzene, reactions 945-51-7, Diphenylsulfoxide 12027-06-4,  
Ammonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of triphenylsulfonium iodide)

IT **3744-08-9P**, Triphenylsulfonium iodide  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(reaction with tetramethylammonium pentafluorobenzenesulfonate)

IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(acid generator; neg. resist contg. alkali-sol.  
resin, crosslinking agent, and compd. having amino and carboxyl groups)

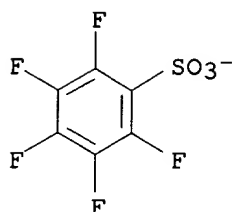
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

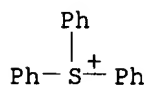
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



IT 270563-92-3 270563-93-4 270563-96-7

279244-39-2 349619-88-1 389859-77-2

RL: TEM (Technical or engineered material use); USES (Uses)

(acid generator; **neg. resist** contg. alkali-sol.

resin, crosslinking agent, and compd. having amino and carboxyl groups)

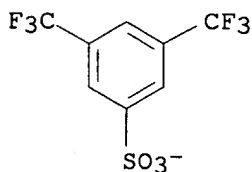
RN 270563-92-3 HCAPLUS

CN Sulfonium, bis(4-methylphenyl)phenyl-, salt with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 213740-84-2

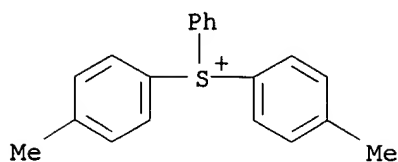
CMF C8 H3 F6 O3 S



CM 2

CRN 70082-58-5

CMF C20 H19 S



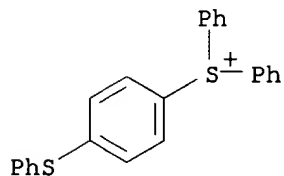
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

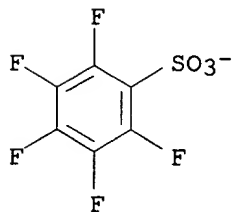
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



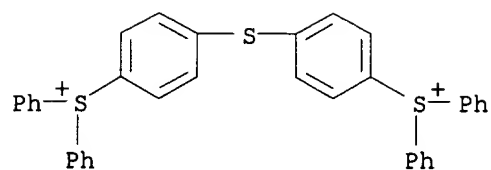
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

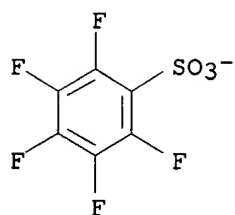
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



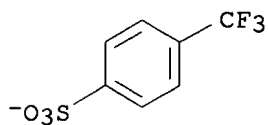
RN 279244-39-2 HCAPLUS

CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

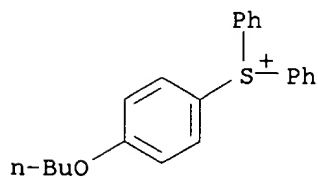
CMF C7 H4 F3 O3 S



CM 2

CRN 112406-00-5

CMF C22 H23 O S



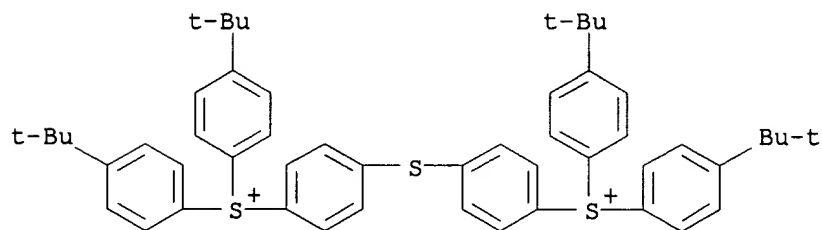
RN 349619-88-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis[4-(1,1-dimethylethyl)phenyl]-, salt with 4-fluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 343629-56-1

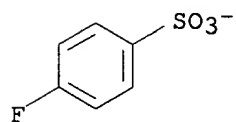
CMF C52 H60 S3



CM 2

CRN 61657-38-3

CMF C6 H4 F O3 S



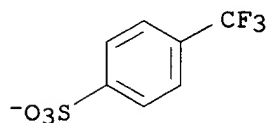
RN 389859-77-2 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
4-(trifluoromethyl)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

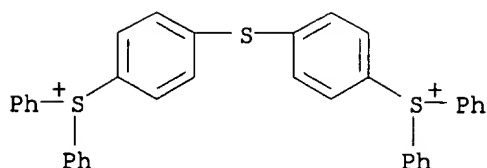
CMF C7 H4 F3 O3 S



CM 2

CRN 74227-34-2

CMF C36 H28 S3



IT 258341-98-9P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(neg. resist contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)

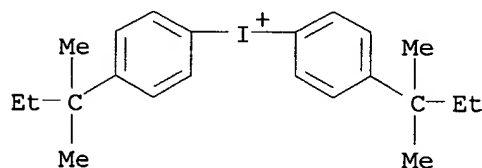
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

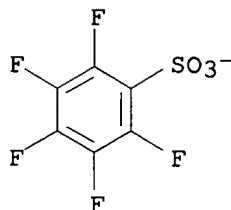
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S

IT 24979-69-9, Poly(m-hydroxystyrene) 149614-53-9,  
m-Hydroxystyrene-p-hydroxystyrene copolymer 396098-38-7  
473313-51-8 478918-37-5

RL: TEM (Technical or engineered material use); USES (Uses)

(neg. resist contg. alkali-sol. resin, crosslinking agent, and compd. having amino and carboxyl groups)

RN 24979-69-9 HCAPLUS

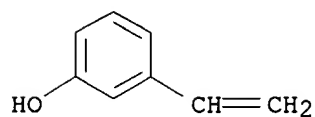
CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)



CM 1

CRN 620-18-8

CMF C8 H8 O



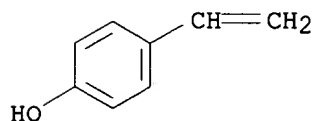
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

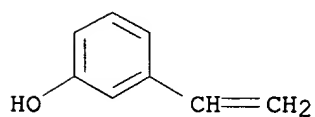
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



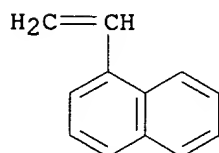
RN 396098-38-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 826-74-4

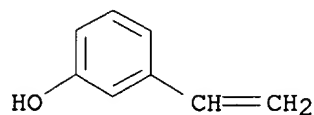
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



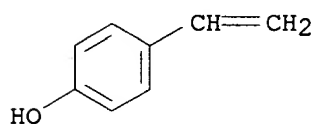
RN 473313-51-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene and 4-ethenylphenol  
(9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

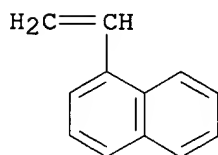
CMF C8 H8 O



CM 2

CRN 826-74-4

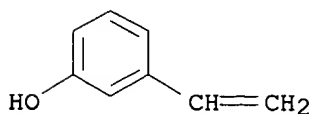
CMF C12 H10



CM 3

CRN 620-18-8

CMF C8 H8 O



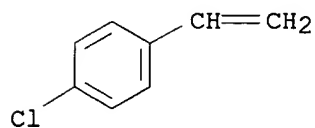
RN 478918-37-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-chloro-4-ethenylbenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 1073-67-2

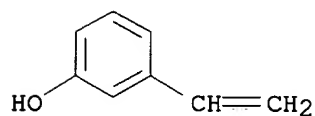
CMF C8 H7 Cl



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 258342-09-5P

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)

(prepn. of diamyphenyliodonium pentafluorobenzenesulfonate)

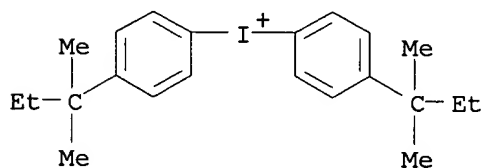
RN 258342-09-5 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA  
INDEX NAME)

CM 1

CRN 249300-51-4

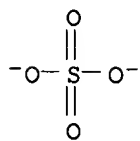
CMF C22 H30 I



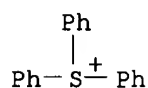
CM 2

CRN 14808-79-8

CMF O4 S



IT 3744-08-9P, Triphenylsulfonium iodide  
 RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (reaction with tetramethylammonium pentafluorobenzenesulfonate)  
 RN 3744-08-9 HCAPLUS  
 CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)



I<sup>-</sup>

L33 ANSWER 8 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:807547 HCAPLUS  
 DN 137:317936  
 TI Electron beam or x-ray negative-working chemical amplification-type resist composition  
 IN Takahashi, Omote; Shirakawa, Hiroshi; Adekawa, Yutaka  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 67 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS G03F007-004; H01L021-027; C07C039-15; C07C043-178  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 35, 38, 46  
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002311584	A2	20021023	JP 2001-112874	20010411
PRAI	JP 2001-112874		20010411		
AB	The tittle resist compn. comprises (a) a photoacid, (b) an alk. sol. resin, (c) a compd. contg. .gtoreq.1 ring structure subjected to ring-opening addn. reaction. The tittle resist compn. further contains a crosslinker, a surfactant and a N-contg. basic compd.				
ST	electron beam <b>neg</b> chem amplification <b>resist</b> compn; x ray <b>neg</b> chem amplification <b>resist</b> compn				
IT	Electron beam <b>resists</b> (electron beam <b>neg</b> .-working chem. amplification-type resist compn.)				
IT	Surfactants (electron beam or x-ray neg.-working chem. amplification-type resist				

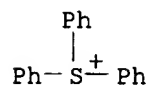
compn. from)  
IT Polysiloxanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray neg.-working chem. amplification-type resist compn. from)  
IT Polyoxyalkylenes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(tri-Ph ether; electron beam or x-ray neg.-working chem. amplification-type resist compn. from)  
IT X-ray resists  
(x-ray neg.-working chem. amplification-type resist compn. from)  
IT 138529-81-4 138529-84-7 **144317-44-2 240424-21-9**  
**241806-75-7 241806-76-8 258341-99-0**  
**258872-05-8 312386-77-9 341548-86-5**  
**343629-51-6 343629-55-0 437652-80-7**  
**437652-81-8**  
RL: CAT (Catalyst use); USES (Uses)  
(electron beam or x-ray neg.-working chem. amplification-type resist compn. from)  
IT 75-21-8, Oxirane, uses 100-97-0, uses 109-99-9, uses 120-93-4,  
2-Imidazolidinone 484-47-9, 2,4,5-Triphenylimidazole 1675-54-3  
2002-16-6, Phenylguanidine 2451-62-9 2455-24-5 3001-72-7 3089-11-0  
13236-02-7 17557-23-2 24544-04-5, 2,6-Diisopropylaniline  
**24979-69-9**, 3-Hydroxystyrene homopolymer 24979-70-2,  
4-Hydroxystyrene homopolymer 24979-74-6, 4-Hydroxystyrene-styrene  
copolymer 24980-18-5, 2-Hydroxystyrene homopolymer 25068-38-6  
25322-68-3D, tri-Ph ether 66072-38-6 93164-56-8 97052-23-8  
109185-69-5 122936-95-2 137462-24-9, Megafac F176 **149614-53-9**  
, 3-Hydroxystyrene-4-Hydroxystyrene copolymer 161679-94-3 162846-57-3  
168537-35-7 171429-59-7, 4-Acetoxystyrene-4-hydroxystyrene copolymer  
185502-14-1 185502-15-2 197087-74-4 216679-67-3, Megafac R08  
321164-59-4 **396098-38-7** 473272-98-9, 3,4,5-Trihydroxystyrene-4-  
hydroxystyrene copolymer 473272-99-0, 3,5-Dihydroxystyrene-4-  
hydroxystyrene copolymer 473273-00-6  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray neg.-working chem. amplification-type resist compn. from)  
IT **144317-44-2 240424-21-9 241806-75-7**  
**241806-76-8 258341-99-0 258872-05-8**  
**312386-77-9 341548-86-5 343629-51-6**  
**343629-55-0 437652-80-7 437652-81-8**  
RL: CAT (Catalyst use); USES (Uses)  
(electron beam or x-ray neg.-working chem. amplification-type resist compn. from)  
RN 144317-44-2 HCAPLUS  
CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 45187-15-3  
CMF C4 F9 O3 S

<sup>-</sup>O<sub>3</sub>S- (CF<sub>2</sub>)<sub>3</sub>-CF<sub>3</sub>

CM 2

CRN 18393-55-0

CMF C18 H15 S



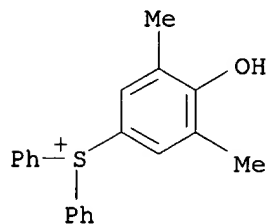
RN 240424-21-9 HCAPLUS

CN Sulfonium, (4-hydroxy-3,5-dimethylphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 127279-85-0

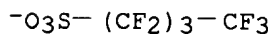
CMF C20 H19 O S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



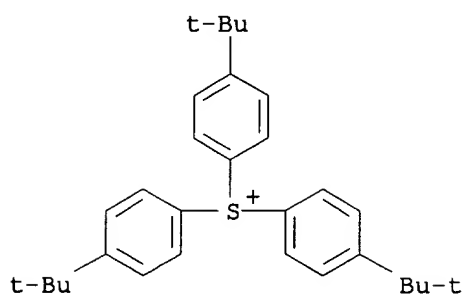
RN 241806-75-7 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 91815-56-4

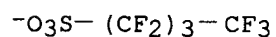
CMF C30 H39 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



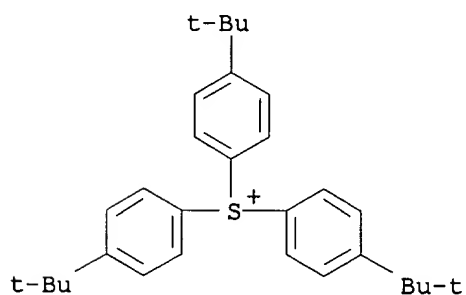
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

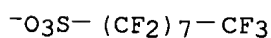
CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S



RN 258341-99-0 HCAPLUS

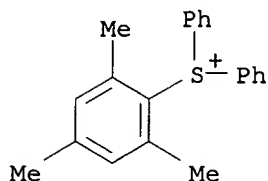
CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with

1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

CMF C21 H21 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

$^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$

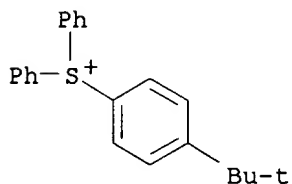
RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}- (\text{CF}_2)_3-\text{CF}_3$

RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with

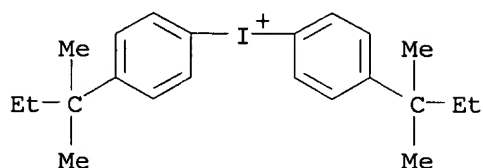


1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

CMF C22 H30 I



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$

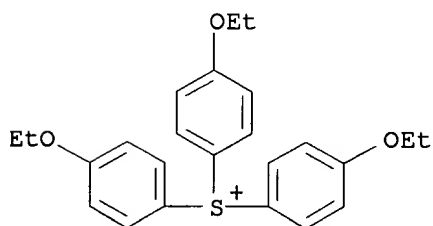
RN 341548-86-5 HCAPLUS

CN Sulfonium, tris(4-ethoxyphenyl)-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 220391-62-8

CMF C24 H27 O3 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_3-\text{CF}_3$

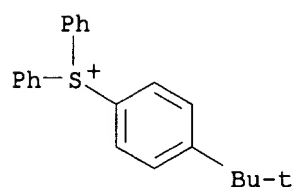
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

<sup>-</sup>O<sub>3</sub>S- (CF<sub>2</sub>)<sub>7</sub>-CF<sub>3</sub>

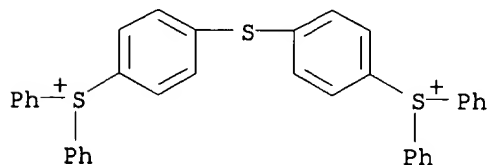
RN 343629-55-0 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
(1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

CMF C36 H28 S3



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

<sup>-</sup>O<sub>3</sub>S- (CF<sub>2</sub>)<sub>7</sub>-CF<sub>3</sub>

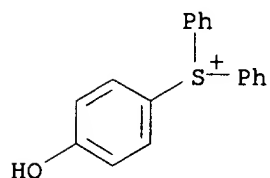
RN 437652-80-7 HCAPLUS

CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 108493-51-2

CMF C18 H15 O S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_7-\text{CF}_3$

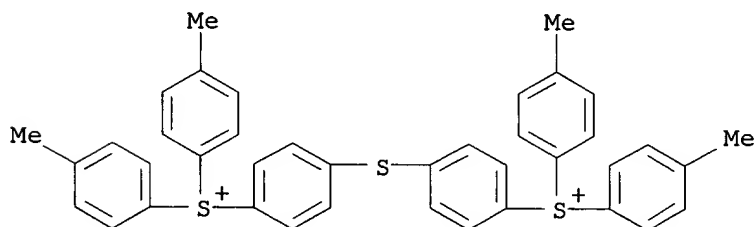
RN 437652-81-8 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-], salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafluoro-1-  
decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 222722-48-7

CMF C40 H36 S3



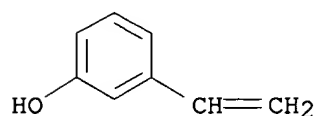
CM 2

CRN 126105-34-8

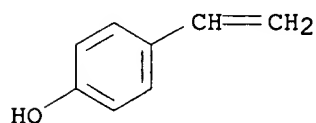
CMF C10 F21 O3 S

$^{-}\text{O}_3\text{S}-(\text{CF}_2)_9-\text{CF}_3$

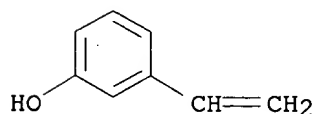
IT 24979-69-9, 3-Hydroxystyrene homopolymer 149614-53-9,  
3-Hydroxystyrene-4-Hydroxystyrene copolymer 396098-38-7  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray neg.-working chem. amplification-type resist  
compn. from)  
RN 24979-69-9 HCAPLUS  
CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 620-18-8  
CMF C8 H8 O



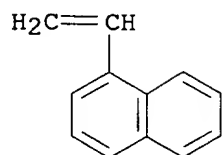
RN 149614-53-9 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)  
  
CM 1  
  
CRN 2628-17-3  
CMF C8 H8 O



CM 2  
  
CRN 620-18-8  
CMF C8 H8 O



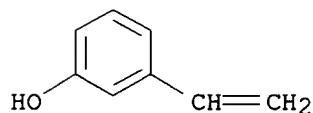
RN 396098-38-7 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX  
NAME)  
  
CM 1  
  
CRN 826-74-4  
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 9 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:802790 HCAPLUS

DN 137:331074

TI Electron beam or x-ray **negative-working resist**  
composition

IN Takahashi, Akira; Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 73 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 38, 46

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002311586	A2	20021023	JP 2001-119723	20010418
PRAI	JP 2001-119723		20010418		

AB The title resists compn. comprises (a) a sulfonium salt or iodonium salt having .gtoreq.1 Ph group capable of generating an acid upon receiving electron beam or x-ray, (b) an alk. sol. resin, (c) a crosslinker working on the resin upon reaction with an acid, and (d) a compd. which cleaves itself and/or in other components by receiving electron beam or x-ray but not forming Ph radical as an intermediate. The resist compn. further contains a N-contg. basic compd. and a surfactant. The resist compn. exhibited high sensitivity under high acceleration voltage conditions.

ST electron beam x ray **neg resist** compn; sulfonium  
iodonium salt x ray **neg resist** compn; crosslinker  
fluorosurfactant surfactant resist compn

IT Electron beam resists

Surfactants

X-ray resists

(electron beam or x-ray **neg.-working resist** compn.)

IT Surfactants  
(fluorosurfactants; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT Polysiloxanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(surfactant; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT 161679-94-3P 162846-57-3P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(crosslinker; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinker; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT 100-97-0, uses 110-89-4, Piperidine, uses 121-44-8, Triethylamine,  
uses 134-81-6 280-42-2, 2,6-Diazabicyclo[2.2.2]octane 484-47-9,  
2,4,5-Triphenylimidazole 947-19-3 1122-58-3, 4-Dimethylaminopyridine  
1592-43-4 1707-68-2 2002-16-6, Phenylguanidine 3001-72-7,  
1,5-Diazabicyclo[4.3.0]non-5-ene 6652-29-5 10373-78-1 24544-04-5  
24650-42-8 **24979-69-9** 26060-56-0 32238-84-9 41556-26-7,  
Bis(1,2,2,6,6-pentamethyl-4-piperidyl)sebacate 55048-40-3 68400-54-4  
68688-54-0 69432-40-2 71868-10-5 75980-60-8 79044-56-7  
119137-03-0 121912-68-3 122936-95-2, 1,8-Diazabicyclo[4.3.0]non-5-ene  
137909-39-8 **149614-53-9** **258341-98-9**  
**345212-28-4** **349647-01-4** **396098-38-7**  
**420131-94-8** **420131-95-9** **420131-96-0**  
**420131-98-2** 473542-90-4 473542-93-7 473542-96-0  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray **neg.**-working **resist** compn.)

IT **144317-44-2** **153698-46-5** **197447-16-8**  
**241806-76-8** **258341-99-0** **258872-05-8**  
**270563-96-7** **312386-77-9** **343629-51-6**  
**343629-55-0** **437652-80-7** **437652-81-8**  
**473542-95-9**  
RL: CAT (Catalyst use); USES (Uses)  
(photoacid; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT 110726-28-8, Trisp-PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(prepn. of crosslinker for electron beam or x-ray **neg.**  
.-working **resist** compn.)

IT 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 97-64-3,  
Ethyl lactate 108-32-7, Propylene carbonate 108-94-1, Cyclohexanone,  
uses 110-43-0, 2-Heptanone 123-86-4, Butyl acetate 1320-67-8,  
Propylene glycol monomethyl ether 84540-57-8, Propylene glycol  
monomethyl ether acetate 98516-33-7, Propylene glycol monomethyl ether  
propionate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvent; electron beam or x-ray **neg.**-working **resist**  
compn.)

IT 25852-90-8 137462-24-9, Megafac F176 216679-67-3, Megafac R08  
RL: TEM (Technical or engineered material use); USES (Uses)  
(surfactant; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT **24979-69-9** **149614-53-9** **258341-98-9**  
**345212-28-4** **349647-01-4** **396098-38-7**

420131-94-8 420131-95-9 420131-96-0

420131-98-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray **neg.**-working **resist** compn.)

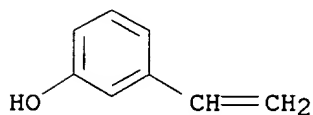
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



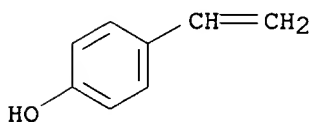
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

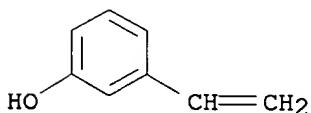
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



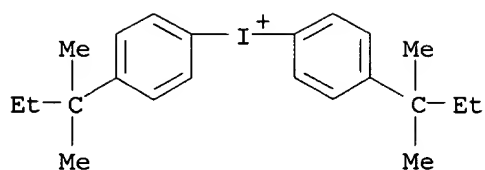
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

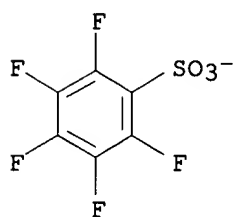
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



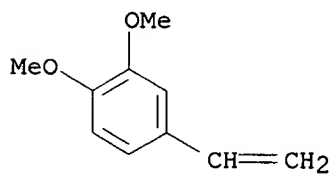
RN 345212-28-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 6380-23-0

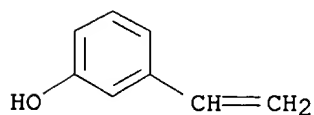
CMF C10 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



RN 349647-01-4 HCAPLUS

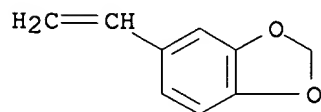


CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

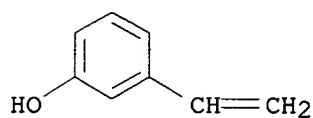
CMF C9 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



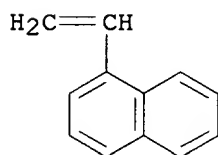
RN 396098-38-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 826-74-4

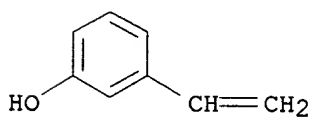
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



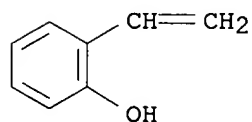
RN 420131-94-8 HCAPLUS

CN Phenol, 2-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 695-84-1

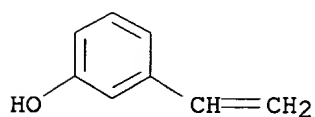
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



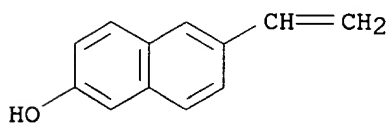
RN 420131-95-9 HCAPLUS

CN 2-Naphthalenol, 6-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 136896-92-9

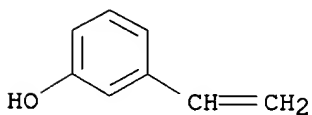
CMF C12 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



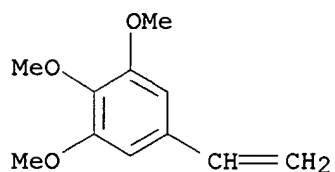
RN 420131-96-0 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene and 5-ethenyl-1,2,3-trimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 13400-02-7

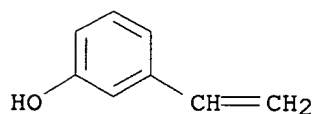
CMF C11 H14 O3



CM 2

CRN 620-18-8

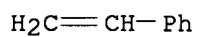
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



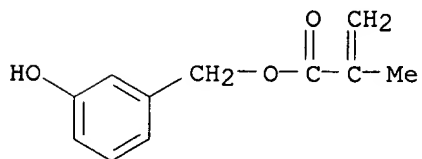
RN 420131-98-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, (3-hydroxyphenyl)methyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 420131-97-1

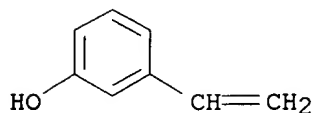
CMF C11 H12 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 144317-44-2 153698-46-5 197447-16-8  
241806-76-8 258341-99-0 258872-05-8  
270563-96-7 312386-77-9 343629-51-6  
343629-55-0 437652-80-7 437652-81-8  
473542-95-9

RL: CAT (Catalyst use); USES (Uses)  
(photoacid; electron beam or x-ray **neg.**-working  
**resist** compn.)

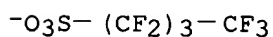
RN 144317-44-2 HCAPLUS

CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 45187-15-3

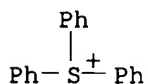
CMF C4 F9 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



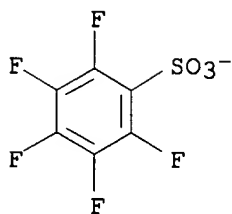
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

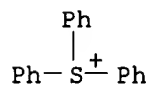
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



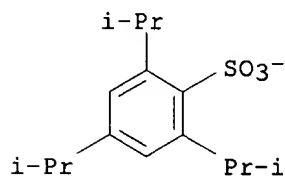
RN 197447-16-8 HCAPLUS

CN Sulfonium, triphenyl-, salt with 2,4,6-tris(1-methylethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 46950-23-6

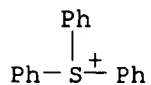
CMF C15 H23 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



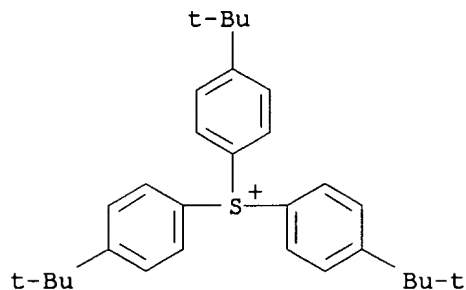
RN 241806-76-8 HCAPLUS

CN Sulfonium, tris[4-(1,1-dimethylethyl)phenyl]-, salt with 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 91815-56-4

CMF C30 H39 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

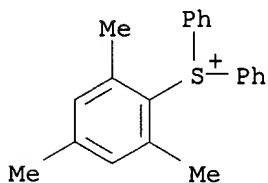
RN 258341-99-0 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptafluoro-1-octanesulfonic acid  
 (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47191-44-6

CMF C21 H21 S



CM 2

CRN 45298-90-6

CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

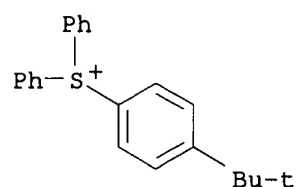
RN 258872-05-8 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S

$-\text{O}_3\text{S}- (\text{CF}_2)_3 - \text{CF}_3$

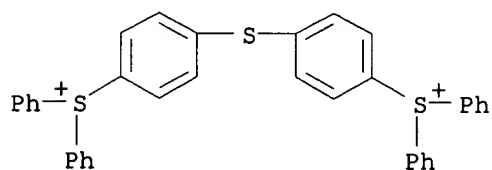
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

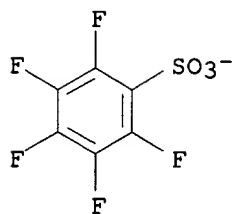
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



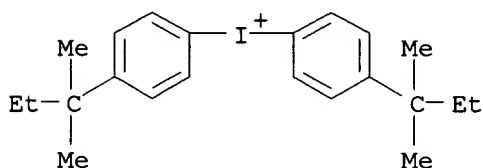
RN 312386-77-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
1,1,2,2,3,3,4,4,4-nonafluoro-1-butanesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 249300-51-4

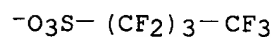
CMF C22 H30 I



CM 2

CRN 45187-15-3

CMF C4 F9 O3 S



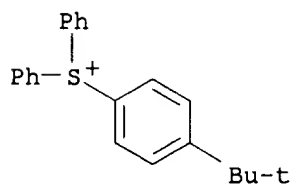
RN 343629-51-6 HCAPLUS

CN Sulfonium, [4-(1,1-dimethylethyl)phenyl]diphenyl-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 66482-54-0

CMF C22 H23 S





CM 2

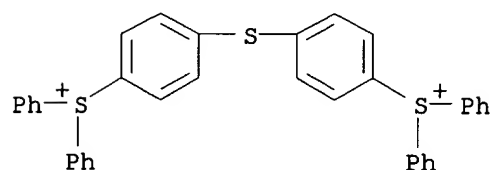
CRN 45298-90-6  
 CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

RN 343629-55-0 HCAPLUS  
 CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
 (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2  
 CMF C36 H28 S3



CM 2

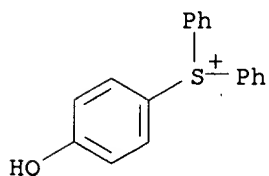
CRN 45298-90-6  
 CMF C8 F17 O3 S

 $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ 

RN 437652-80-7 HCAPLUS  
 CN Sulfonium, (4-hydroxyphenyl)diphenyl-, salt with  
 1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,8-heptadecafluoro-1-octanesulfonic acid  
 (1:1) (9CI) (CA INDEX NAME)

CM 1

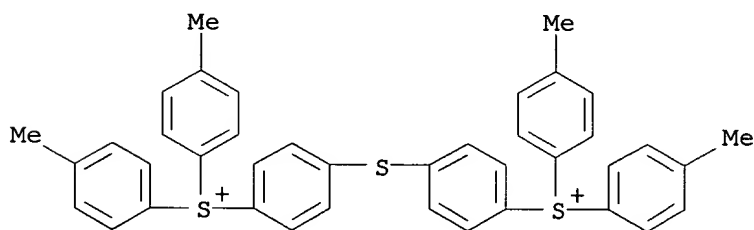
CRN 108493-51-2  
 CMF C18 H15 O S



CM 2

CRN 45298-90-6  
CMF C8 F17 O3 S $^{-}\text{O}_3\text{S}- (\text{CF}_2)_7-\text{CF}_3$ RN 437652-81-8 HCAPLUS  
CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with  
1,1,2,2,3,3,4,4,5,5,6,6,7,7,8,8,9,9,10,10,10-heneicosafuoro-1-  
decanesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

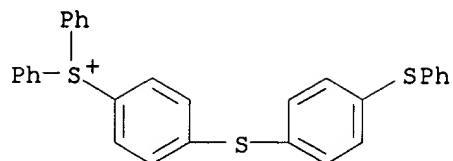
CRN 222722-48-7  
CMF C40 H36 S3

CM 2

CRN 126105-34-8  
CMF C10 F21 O3 S $^{-}\text{O}_3\text{S}- (\text{CF}_2)_9-\text{CF}_3$ RN 473542-95-9 HCAPLUS  
CN Sulfonium, diphenyl[4-[[4-(phenylthio)phenyl]thio]phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

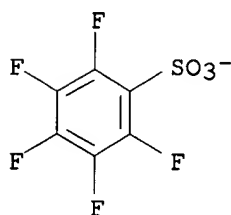
CRN 101200-54-8  
CMF C30 H23 S3



CM 2

CRN 46377-88-2

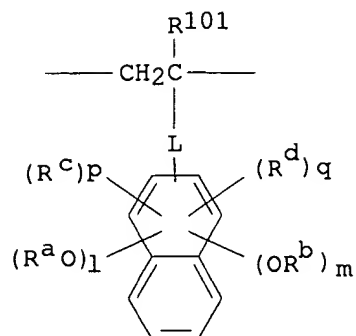
CMF C6 F5 O3 S



L33 ANSWER 10 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:802789 HCAPLUS  
 DN 137:331073  
 TI Electron beam or x-ray **negative-working resist**  
 composition  
 IN Adegawa, Yutaka  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 45 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS G03F007-038; C08K005-00; C08L101-00; G03F007-004; G03F007-033;  
 H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 35, 38, 46

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002311585	A2	20021023	JP 2001-114335	20010412
PRAI	JP 2001-114335		20010412		
GI					



- AB The title resist compn. comprises (a) an alk. sol. resin having a repeating unit I (R101 = H, Me, Et; L = divalent bonding group; Ra,b = C1-12 alkyl, cyclic alkyl, etc.; Rc,d = C1-12 alkyl, cyclic alkyl, etc.; l, m = integer 0-3; l + m.ltoreq.4; p, q = integer 0-3; p + q.ltoreq.4; and l + m + p + q.ltoreq.7), (b) a crosslinker, (c) a photoacid, (d) a F- and/or Si-based surfactant. The component (c) is sulfonic acid salts of sulfonium or iodonium, or a sulfonate of N-hydroxyimide. The resist compn. further contains an org. basic compd. A solvent used in the resist provided a fine resist pattern having a rectangular cross section.
- ST electron beam x ray **neg resist** compn; silicon fluorine surfactant resist compn
- IT Electron beam resists  
Surfactants  
X-ray resists  
(electron beam or x-ray **neg.-working resist** compn.)
- IT Surfactants  
(fluorosurfactants; electron beam or x-ray **neg.-working resist** compn.)
- IT Polysiloxanes, uses  
RL: TEM (Technical or engineered material use); USES (Uses)  
(surfactant; electron beam or x-ray **neg.-working resist** compn.)
- IT 79-30-1, Isobutyric acid chloride 123-30-8, p-Aminophenol  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinker in electron beam or x-ray **neg.-working resist** compn.)
- IT 484-47-9 1122-58-3, 4-Dimethylaminopyridine 3001-72-7 244057-73-6  
321164-59-4 345212-56-8 345212-61-5 345212-63-7 345212-64-8  
345212-73-9 345212-75-1 **420131-95-9** 425422-38-4  
**473313-47-2 473313-48-3 473313-49-4**  
473313-50-7 **473313-51-8 473313-52-9**  
**473313-53-0 473313-54-1 473313-55-2**  
**473313-56-3 473313-57-4 473313-58-5**  
473313-60-9 473313-61-0 473313-63-2 473313-65-4 473313-67-6  
473313-69-8 473313-71-2 473313-73-4 473313-75-6 473313-77-8  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray **neg.-working resist** compn.)
- IT 19361-97-8 23928-87-2 73674-58-5 76656-49-0 138046-33-0  
138046-36-3 142096-70-6 **153698-46-5** 153698-67-0  
154220-26-5 199432-75-2 205514-96-1 335385-82-5 473313-78-9  
RL: CAT (Catalyst use); USES (Uses)

(photoacid; electron beam or x-ray **neg.**-working  
**resist** compn.)

IT 84540-57-8, Propylene glycol monomethyl ether acetate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvent; electron beam or x-ray **neg.**-working **resist**  
compn.)

IT 420131-95-9 473313-47-2 473313-48-3  
473313-49-4 473313-51-8 473313-52-9  
473313-53-0 473313-54-1 473313-55-2  
473313-56-3 473313-57-4 473313-58-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron beam or x-ray **neg.**-working **resist** compn.)

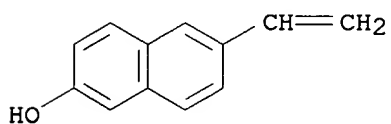
RN 420131-95-9 HCAPLUS

CN 2-Naphthalenol, 6-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX  
NAME)

CM 1

CRN 136896-92-9

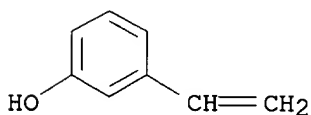
CMF C12 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



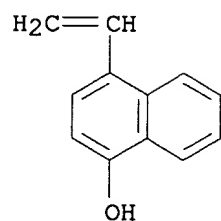
RN 473313-47-2 HCAPLUS

CN 1-Naphthalenol, 4-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX  
NAME)

CM 1

CRN 153233-63-7

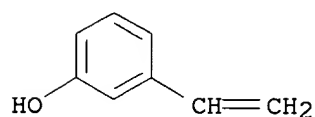
CMF C12 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



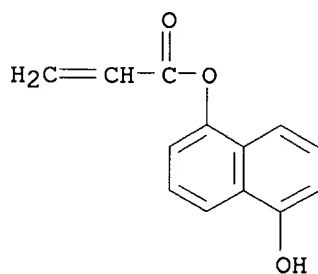
RN 473313-48-3 HCAPLUS

CN 2-Propenoic acid, 5-hydroxy-1-naphthalenyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 345212-66-0

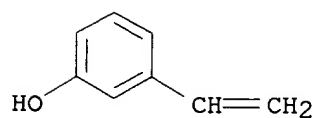
CMF C13 H10 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



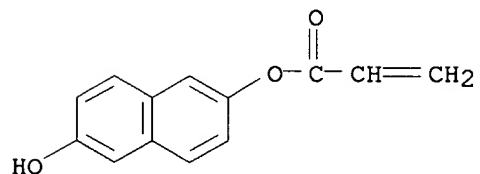
RN 473313-49-4 HCAPLUS

CN 2-Propenoic acid, 6-hydroxy-2-naphthalenyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 345212-68-2

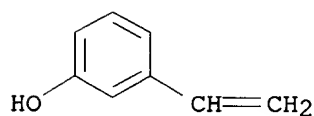
CMF C13 H10 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



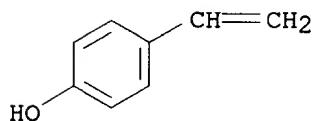
RN 473313-51-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenylnaphthalene and 4-ethenylphenol  
(9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

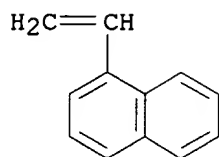
CMF C8 H8 O



CM 2

CRN 826-74-4

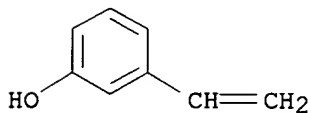
CMF C12 H10



CM 3

CRN 620-18-8

CMF C8 H8 O



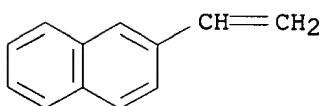
RN 473313-52-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 2-ethylnaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 827-54-3

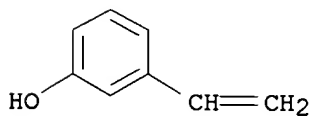
CMF C12 H10



CM 2

CRN 620-18-8

CMF C8 H8 O



RN 473313-53-0 HCAPLUS

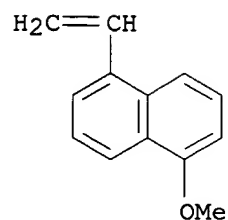
CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-5-methoxynaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 105903-84-2

CMF C13 H12 O

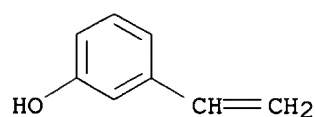




CM 2

CRN 620-18-8

CMF C8 H8 O



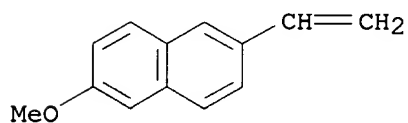
RN 473313-54-1 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 2-ethenyl-6-methoxynaphthalene (9CI) (CA INDEX NAME)

CM 1

CRN 63444-51-9

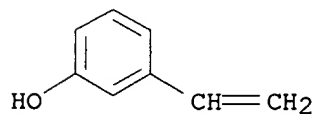
CMF C13 H12 O



CM 2

CRN 620-18-8

CMF C8 H8 O



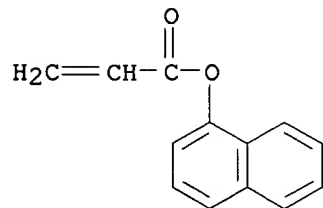
RN 473313-55-2 HCAPLUS

CN 2-Propenoic acid, 1-naphthalenyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 20069-66-3

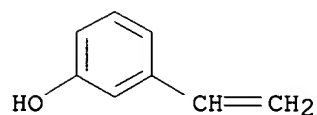
CMF C13 H10 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



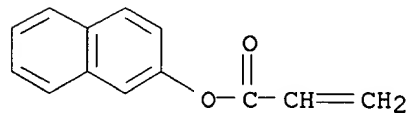
RN 473313-56-3 HCAPLUS

CN 2-Propenoic acid, 2-naphthalenyl ester, polymer with 3-ethenylphenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 52684-34-1

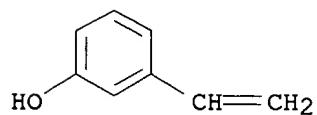
CMF C13 H10 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



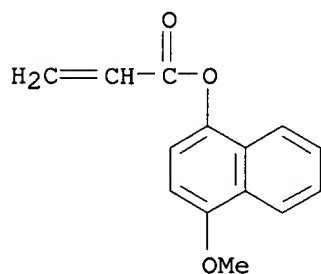
RN 473313-57-4 HCAPLUS

CN 2-Propenoic acid, 4-methoxy-1-naphthalenyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 116688-47-2

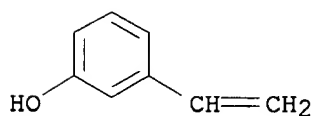
CMF C14 H12 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



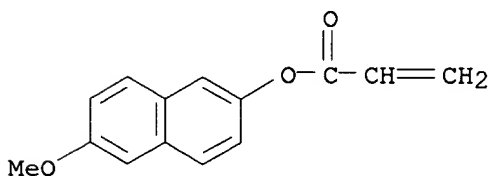
RN 473313-58-5 HCAPLUS

CN 2-Propenoic acid, 6-methoxy-2-naphthalenyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 345212-72-8

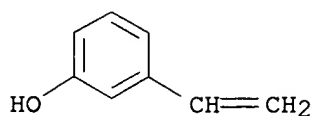
CMF C14 H12 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 153698-46-5

RL: CAT (Catalyst use); USES (Uses)  
 (photoacid; electron beam or x-ray **neg.**-working  
**resist** compn.)

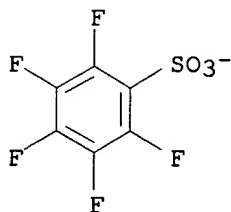
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

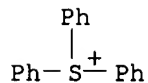
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



L33 ANSWER 11 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:364224 HCAPLUS

DN 136:393265

TI Chemically-amplified **negative**-working **resist**  
 compositions containing radical generators

IN Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 83 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08K005-00; C08L101-00; G03F007-004; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other

## Reprographic Processes)

FAN.CNT 1

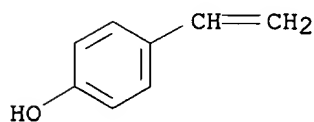
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002139836	A2	20020517	JP 2000-336334	20001102
PRAI	JP 2000-336334		20001102		
AB	The compns., which show high sensitivity, high resolu., rectangular pattern profile, and PCD (post coating delay) and PED (post exposure delay) stability, contain (a) compds. which directly or indirectly generate radicals upon irradiation with energy ray. The compns. may contain (b) compds. which generate acids upon irradiation with energy ray, (c) alkali-sol. resins, and (d) crosslinking agents reacting by acids.				
ST	chem amplified <b>neg resist</b> radical generator; tetrahydrofurfuryl benzenetricarboxylate radical generator <b>neg resist</b>				
IT	Electron beam <b>resists</b> <b>Resists</b> ( <b>neg.</b> -working; chem.-amplified <b>neg.</b> -working <b>resist</b> compns. contg. compds. which generate radicals upon irradiation.)				
IT	105649-65-8DP, 3-t-Butoxystyrene homopolymer, hydrolyzed <b>149614-53-9P</b> 169549-85-3DP, hydrolyzed 321164-59-4P 345212-27-3P <b>345212-28-4P 345212-30-8P</b> 345212-36-4P 345212-54-6P 345212-55-7P 345212-56-8P 345212-60-4P 345212-61-5P 345212-63-7P 345212-64-8P 345212-67-1P 345212-69-3P 345212-71-7P 345212-73-9P 345212-74-0P 345212-77-3P 345212-78-4P 345212-80-8P 345212-86-4P 345212-89-7P 345212-91-1P 345212-92-2P 345212-93-3P 345212-95-5P 345212-97-7P 345212-99-9P <b>349619-43-8P</b> 425422-24-8DP, 4-t-Butoxystyrene-3,4-dimethoxystyrene copolymer, hydrolyzed 425422-26-0P <b>425422-30-6P</b> 425422-38-4P 425422-40-8P 425422-53-3P 425422-59-9P 425422-62-4P 425422-65-7P 425422-68-0P 425615-29-8DP, hydrolyzed RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (alkali-sol. resin; chem.-amplified <b>neg.</b> -working <b>resist</b> compns. contg. compds. which generate radicals upon irradiation.)				
IT	60-24-2 64-69-7 75-62-7 75-66-1 98-13-5 98-85-1 100-51-6, Benzenemethanol, uses 107-96-0 118-75-2, uses 140-11-4 304-88-1 484-47-9, 2,4,5-Triphenylimidazole 507-63-1 524-38-9 530-48-3 539-74-2 556-56-9 558-13-4, Carbon tetrabromide 586-61-8 599-99-5 629-27-6 1122-58-3, 4-Dimethylaminopyridine 1155-51-7 1212-08-4 1746-13-0 2043-57-4 2444-68-0 2885-00-9, 1-Octadecanethiol 3001-72-7, 1,5-Diazabicyclo[4.3.0]non-5-ene 3698-94-0 4623-50-1 5586-15-2 6674-22-2, 1,8-Diazabicyclo[5.4.0]undec-7-ene 7031-93-8 10193-99-4 10478-23-6 10568-85-1 21545-54-0 45708-67-6 60012-29-5 61758-07-4, 2-Octene-1-thiol 62753-17-7 425421-73-4 425421-79-0 425421-81-4 425421-83-6 RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses) (chem.-amplified <b>neg.</b> -working <b>resist</b> compns. contg. compds. which generate radicals upon irradiation.)				
IT	161679-94-3P 161679-95-4P 161679-98-7P 162846-57-3P 185502-11-8P 185502-14-1P 185502-15-2P 197087-73-3P 197087-74-4P RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses) (crosslinking agent; chem.-amplified <b>neg.</b> -working <b>resist</b> compns. contg. compds. which generate radicals upon irradiation.)				

irradn.)  
IT 110726-28-8P, Trisp-PA  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(in prepn. of crosslinking agent; chem.-amplified **neg** .-working **resist** compns. contg. compds. which generate radicals upon irradn.)  
IT 832-53-1, Pentafluorobenzenesulfonyl chloride 2049-95-8, tert-Amylbenzene 4270-70-6, Triphenylsulfonium chloride  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in prepn. of photoacid generator; chem.-amplified **neg** .-working **resist** compns. contg. compds. which generate radicals upon irradn.)  
IT 258341-98-9P 270563-93-4P 270563-96-7P  
RL: CAT (Catalyst use); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(photoacid generator; chem.-amplified **neg**.-working **resist** compns. contg. compds. which generate radicals upon irradn.)  
IT 194999-82-1 279244-45-0  
RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)  
(photoacid generator; chem.-amplified **neg**.-working **resist** compns. contg. compds. which generate radicals upon irradn.)  
IT 149614-53-9P 345212-28-4P 345212-30-8P 349619-43-8P 425422-30-6P  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(alkali-sol. resin; chem.-amplified **neg**.-working **resist** compns. contg. compds. which generate radicals upon irradn.)  
RN 149614-53-9 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

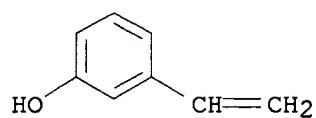
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



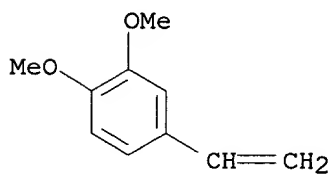
RN 345212-28-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 6380-23-0

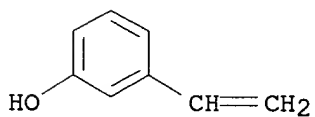
CMF C10 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



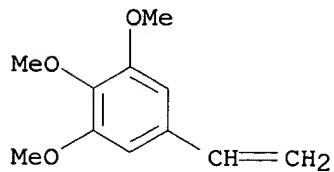
RN 345212-30-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,2,3-trimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

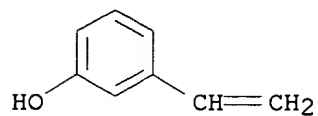
CRN 13400-02-7

CMF C11 H14 O3



CM 2

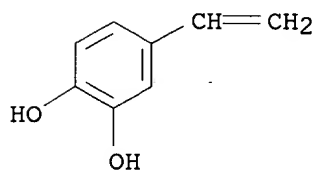
CRN 620-18-8  
CMF C8 H8 O



RN 349619-43-8 HCAPLUS  
CN 1,2-Benzenediol, 4-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

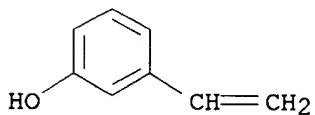
CM 1

CRN 6053-02-7  
CMF C8 H8 O2



CM 2

CRN 620-18-8  
CMF C8 H8 O

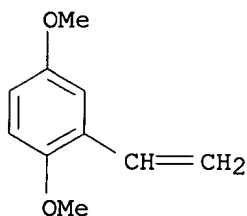


RN 425422-30-6 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 2-ethenyl-1,4-dimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 14568-68-4  
CMF C10 H12 O2

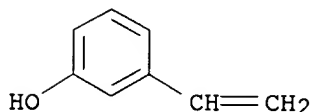




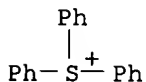
CM 2

CRN 620-18-8

CMF C8 H8 O



IT **4270-70-6**, Triphenylsulfonium chloride  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (in prepn. of photoacid generator; chem.-amplified **neg**  
 .-working **resist** compns. contg. compds. which generate  
 radicals upon irradiation.)  
 RN 4270-70-6 HCAPLUS  
 CN Sulfonium, triphenyl-, chloride (8CI, 9CI) (CA INDEX NAME)

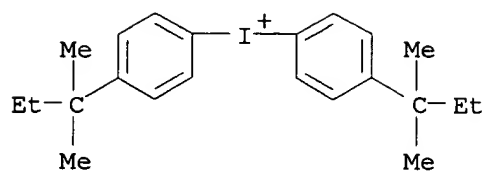
Cl<sup>-</sup>

IT **258341-98-9P 270563-93-4P 270563-96-7P**  
 RL: CAT (Catalyst use); SPN (Synthetic preparation); TEM (Technical or  
 engineered material use); PREP (Preparation); USES (Uses)  
 (photoacid generator; chem.-amplified **neg**.-working  
**resist** compns. contg. compds. which generate radicals upon  
 irradiation.)  
 RN 258341-98-9 HCAPLUS  
 CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
 pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

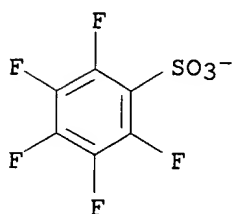
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



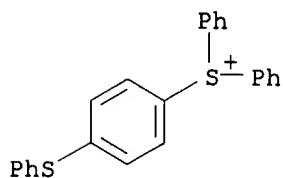
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

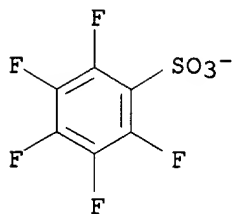
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



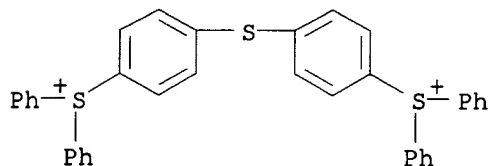
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

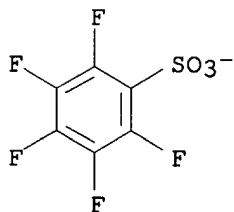
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT 194999-82-1 279244-45-0

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES (Uses)

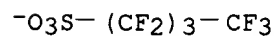
(photoacid generator; chem.-amplified **neg.**-working **resist** comps. contg. compds. which generate radicals upon irradiation.)

RN 194999-82-1 HCAPLUS

CN Iodonium, diphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-butan-1-ylsulfonic acid (1:1) (9CI) (CA INDEX NAME)

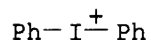
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S



CM 2

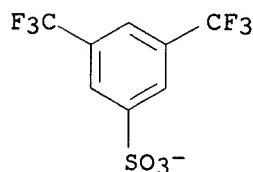
CRN 10182-84-0  
CMF C12 H10 I



RN 279244-45-0 HCAPLUS  
CN Iodonium, bis(4-chlorophenyl)-, salt with 3,5-bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

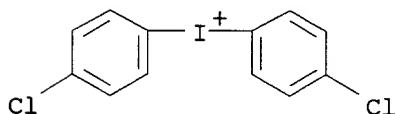
CM 1

CRN 213740-84-2  
CMF C8 H3 F6 O3 S



CM 2

CRN 46449-60-9  
CMF C12 H8 Cl2 I



L33 ANSWER 12 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
AN 2002:345225 HCAPLUS  
DN 136:361819  
TI Chemically amplified **negative resist** compositions for  
electron-beam or x-ray lithography  
IN Adegawa, Yutaka  
PA Fuji Photo Film Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 44 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08K005-13; C08K005-16; C08K005-375; C08K005-42; C08L025-18;  
C08L061-32; C08L063-00; C08L101-06; G03F007-004; H01L021-027CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 38, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002131908	A2	20020509	JP 2000-320866	20001020
PRAI	JP 2000-320866		20001020		

OS MARPAT 136:361819

AB The compns., showing high resoln., high sensitivity, and good stability in  
post-coating and -exposure delay, comprise (A) N-hydroxylimide sulfonates  
(Markush given) as radiation-sensitive acid generators, (B) water-insol.  
and alk.-soln.-sol. resins (Markush given) having Ph with OH at meta  
positions and satisfy polydispersity 1.0-1.5, and (C) acid-sensitive  
crosslinking agents.ST amplified electron beam x ray resist; hydroxyimide sulfonate radiation  
sensitive acid generator; butoxystyrene polymer hydrolyzed chem amplified  
resist; methoxymethylated phenol crosslinker x ray resist

IT Crosslinking agents

Electron beam lithography

Semiconductor device fabrication

X-ray lithography

(chem. amplified **neg. resists** contg.

N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT Aminoplasts

RL: TEM (Technical or engineered material use); USES (Uses)

(hydroxymethylated or acyloxymethylated derivs., crosslinking agents;

chem. amplified **neg. resists** contg. N-hydroxylimide

sulfonates for electron-beam or x-ray lithog.)

IT **Resists**(radiation-sensitive, **neg.**; **neg.**-working chem.amplified **resist** compns. for electron-beam or x-ray lithog.)IT 10409-07-1 14159-45-6 42880-05-7 54769-40-3 **66003-76-7**72015-32-8 **144317-44-2** 154220-26-5 **349619-92-7**420131-99-3 420132-00-9 420132-01-0 **420132-02-1**RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES  
(Uses)(acid generators; chem. amplified **neg. resists**

contg. N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT 105649-65-8DP, 3-tert-Butoxystyrene homopolymer, hydrolyzed

155168-25-5DP, hydrolyzed 406685-56-1DP, hydrolyzed 406685-57-2DP,  
hydrolyzedRL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)(chem. amplified **neg. resists** contg.

N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT 32238-84-9 121912-68-3 **345212-30-8** **420131-94-8****420131-95-9** **420131-96-0** **420131-98-2**

RL: TEM (Technical or engineered material use); USES (Uses)

(chem. amplified **neg. resists** contg.

N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT 161679-94-3P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinking agents; chem. amplified **neg. resists**

contg. N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT 57-13-6D, Urea, hydroxymethylated or acyloxymethylated derivs.  
108-78-1D, Melamine, hydroxymethylated or acyloxymethylated derivs.  
108-95-2D, Phenol, hydroxymethylated or acyloxymethylated derivs.  
3089-11-0, Hexamethoxymethylmelamine 9003-08-1D, Melamine resin,  
hydroxymethylated or acyloxymethylated derivs. 9011-05-6D, Urea resin,  
hydroxymethylated or acyloxymethylated derivs. 185502-14-1 185502-15-2  
197087-74-4

RL: TEM (Technical or engineered material use); USES (Uses)

(crosslinking agents; chem. amplified **neg. resists**

contg. N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

IT 110726-28-8, Trisp PA

RL: RCT (Reactant); RACT (Reactant or reagent)

(in prepn. of methoxymethyl-bearing PhOH derivs. for crosslinking  
agents of chem. amplified **neg. resists**)

IT 66003-76-7 144317-44-2 349619-92-7

420132-02-1

RL: CAT (Catalyst use); TEM (Technical or engineered material use); USES  
(Uses)

(acid generators; chem. amplified **neg. resists**

contg. N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

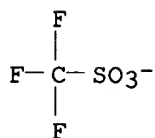
RN 66003-76-7 HCAPLUS

CN Iodonium, diphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

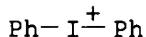
CMF C F3 O3 S



CM 2

CRN 10182-84-0

CMF C12 H10 I

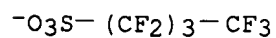


RN 144317-44-2 HCAPLUS

CN Sulfonium, triphenyl-, salt with 1,1,2,2,3,3,4,4,4-nonafluoro-1-  
butanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

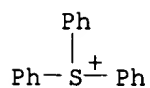
CM 1

CRN 45187-15-3  
CMF C4 F9 O3 S



CM 2

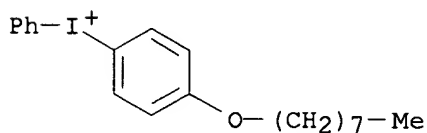
CRN 18393-55-0  
CMF C18 H15 S



RN 349619-92-7 HCAPLUS  
CN Iodonium, [4-(octyloxy)phenyl]phenyl-, salt with 4-fluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

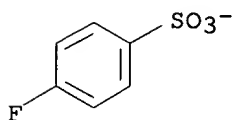
CM 1

CRN 121239-74-5  
CMF C20 H26 I O



CM 2

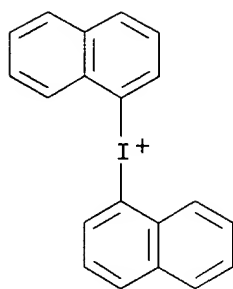
CRN 61657-38-3  
CMF C6 H4 F O3 S



RN 420132-02-1 HCAPLUS  
CN Iodonium, di-1-naphthalenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

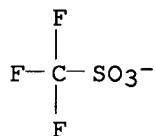
CRN 137337-65-6  
CMF C20 H14 I



CM 2

CRN 37181-39-8

CMF C F3 O3 S



IT 345212-30-8 420131-94-8 420131-95-9

420131-96-0 420131-98-2

RL: TEM (Technical or engineered material use); USES (Uses)  
(chem. amplified **neg. resists** contg.)

N-hydroxylimide sulfonates for electron-beam or x-ray lithog.)

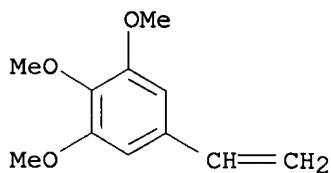
RN 345212-30-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,2,3-trimethoxybenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 13400-02-7

CMF C11 H14 O3

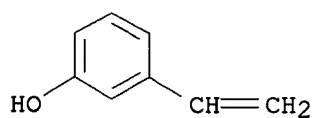


CM 2

CRN 620-18-8

CMF C8 H8 O





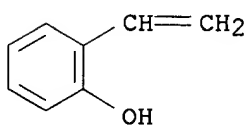
RN 420131-94-8 HCAPLUS

CN Phenol, 2-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 695-84-1

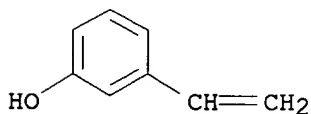
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



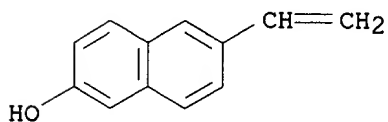
RN 420131-95-9 HCAPLUS

CN 2-Naphthalenol, 6-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 136896-92-9

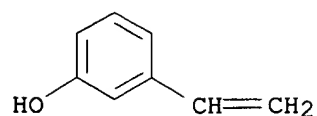
CMF C12 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



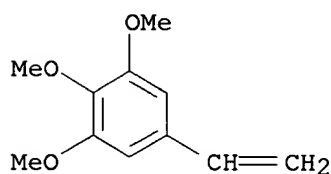
RN 420131-96-0 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene and 5-ethenyl-1,2,3-trimethoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 13400-02-7

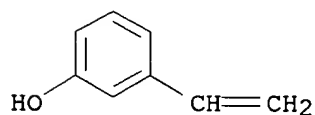
CMF C11 H14 O3



CM 2

CRN 620-18-8

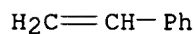
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



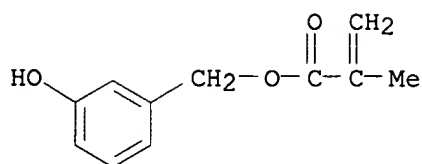
RN 420131-98-2 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, (3-hydroxyphenyl)methyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 420131-97-1

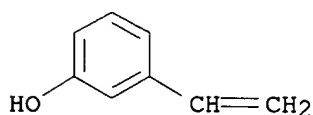
CMF C11 H12 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 13 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:253086 HCAPLUS

DN 136:301771

TI **Negative resist** composition for ultra-microlithographyIN Uenishi, KazuyaPA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 50 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G03F007-004

ICS G03F007-038

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1193555	A1	20020403	EP 2001-120664	20010831
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002148806	A2	20020522	JP 2001-264111	20010831
	US 2002061462	A1	20020523	US 2001-942768	20010831
PRAI	JP 2000-263815	A	20000831		

OS MARPAT 136:301771

AB The invention relates to a **neg. resist** compn. suitable for use in ultra-microlithog. for producing VLSI and microchips and other photofabrication processes and in processing semiconductor devices using high-energy beams such as an electron beam. Fine patterns can be formed using the resist compn. in x-ray lithog. The compn. comprises: an alkali-sol. resin; a compd. capable of generating an acid upon irradiation; a crosslinking agent capable of crosslinking by the action of an acid; and a solvent mixt. contg.: .gtoreq.1 solvent selected from the group (a) ; and .gtoreq.1 selected from the group consisting of groups (b) and (c): (a) a propylene glycol monoalkyl ether carboxylate; (b) a propylene glycol

monoalkyl ether, an alkyl lactate, an acetic ester, a chain ketone and an alkyl alkoxypropionate; and (c) a .gamma.-butyrolactone, an ethylene carbonate and a propylene carbonate.

- ST **neg photoresist** alkali soluble resin crosslinking agent semiconductor device; electron beam lithog microchip photoresist polystyrene glycol ether surfactant
- IT Electron beam lithography
- Negative photoresists**
- X-ray lithography
- (**neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and surfactant)
- IT Polysiloxanes, uses
- RL: TEM (Technical or engineered material use); USES (Uses)
- (**neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and surfactant)
- IT Phenolic resins, uses
- RL: NUU (Other use, unclassified); USES (Uses)
- (novolak; **neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and surfactant)
- IT Fluoropolymers, uses
- RL: NUU (Other use, unclassified); USES (Uses)
- (surfactants; **neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and surfactant)
- IT **66003-78-9P** 406913-96-0P
- RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (acid-generating agent; alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)
- IT **270563-92-3 270563-93-4 270563-96-7**  
**279244-39-2 349619-92-7 349647-26-3**  
**389859-77-2 398457-16-4 406914-01-0**
- RL: TEM (Technical or engineered material use); USES (Uses)
- (acid-generating agent; alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)
- IT **153698-46-5P 258341-98-9P** 270564-02-8P
- RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
- (acid-generating agent; alkali-sol. resin contg. styrene polymer for **neg. resist** compn. for x-ray/electron-beam lithog.)
- IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**
- RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
- (alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)
- IT 75-59-2, Tetramethylammonium hydroxide 832-53-1, Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide 2049-95-8, tert-Amylbenzene
- RL: RCT (Reactant); RACT (Reactant or reagent)
- (alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)
- IT **24979-69-9P** 24979-70-2P **24979-73-5P** 27029-76-1P  
**149614-53-9P 349619-43-8P 349619-47-2P**  
**349619-51-8P 349619-56-3P 349619-61-0P**  
**349619-65-4P 349619-68-7P 349619-72-3P**

**349619-76-7P 349619-80-3P**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(alkali-sol. resin contg. styrene polymer for **neg. resist** compn. for x-ray/electron-beam lithog.)

IT 3089-11-0P 109185-69-5P 185502-11-8P 185502-14-1P 185502-15-2P  
197087-74-4P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinking agent; alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)

IT 161679-94-3P 162846-57-3P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(crosslinking agent; alkali-sol. resin contg. styrene polymer for **neg. resist** compn. for x-ray/electron-beam lithog.)

IT 110726-28-8, Trisp-Pa

RL: RCT (Reactant); RACT (Reactant or reagent)

(formylation; alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)

IT 96-48-0 96-49-1, 1,3-Dioxolan-2-one 97-64-3 108-32-7 763-69-9  
1320-67-8 84540-57-8 98516-33-7

RL: TEM (Technical or engineered material use); USES (Uses)

(**neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and solvent mixt. contg.)

IT 484-47-9

RL: TEM (Technical or engineered material use); USES (Uses)

(**neg. photoresist** compn. for x-ray/electron-beam lithog. contg. alkali-sol. resin and crosslinking agent and surfactant)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

- (1) Fuji Photo Film Co Ltd; DE 4435791 A 1995 HCAPLUS
- (2) Fuji Photo Film Co Ltd; EP 1117002 A 2001 HCAPLUS
- (3) Japan Synthetic Rubber Co Ltd; EP 0634696 A 1995 HCAPLUS
- (4) Yoshimoto, H; US 5340697 A 1994 HCAPLUS

IT **66003-78-9P**

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid-generating agent; alkali-sol. resin contg. styrene polymer for **neg. photoresist** compn. for x-ray/electron-beam lithog.)

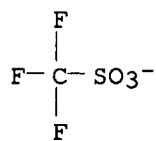
RN 66003-78-9 HCAPLUS

CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

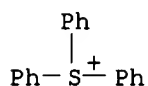
CMF C F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



IT 270563-92-3 270563-93-4 270563-96-7

279244-39-2 349619-92-7 349647-26-3

389859-77-2 398457-16-4 406914-01-0

RL: TEM (Technical or engineered material use); USES (Uses)

(acid-generating agent; alkali-sol. resin contg. styrene polymer for  
**neg. photoresist** compn. for x-ray/electron-beam  
 lithog.)

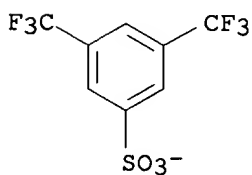
RN 270563-92-3 HCAPLUS

CN Sulfonium, bis(4-methylphenyl)phenyl-, salt with 3,5-  
 bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 213740-84-2

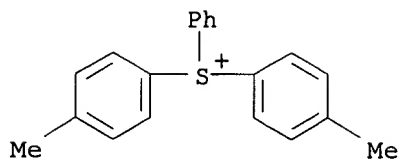
CMF C8 H3 F6 O3 S



CM 2

CRN 70082-58-5

CMF C20 H19 S



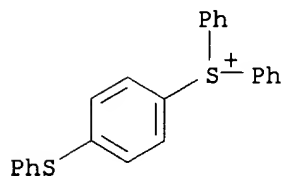
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

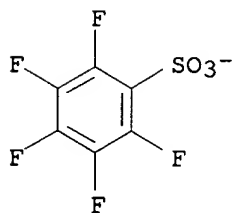
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



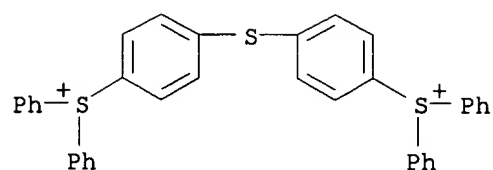
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

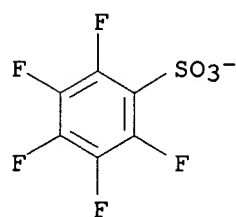
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



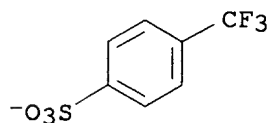
RN 279244-39-2 HCAPLUS

CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

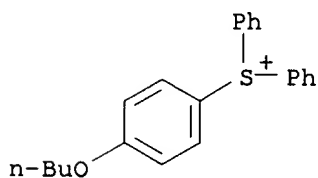
CMF C7 H4 F3 O3 S



CM 2

CRN 112406-00-5

CMF C22 H23 O S



RN 349619-92-7 HCAPLUS

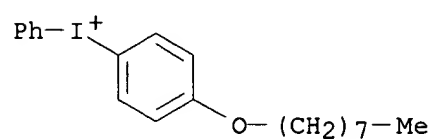


CN Iodonium, [4-(octyloxy)phenyl]phenyl-, salt with 4-fluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 121239-74-5

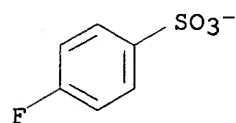
CMF C20 H26 I O



CM 2

CRN 61657-38-3

CMF C6 H4 F O3 S



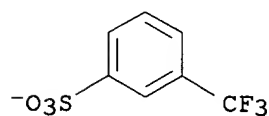
RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with 3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 104994-84-5

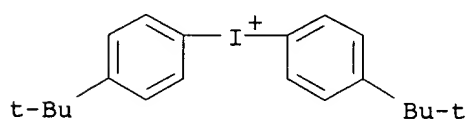
CMF C7 H4 F3 O3 S



CM 2

CRN 61267-44-5

CMF C20 H26 I



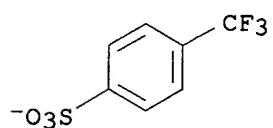
RN 389859-77-2 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
4-(trifluoromethyl)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

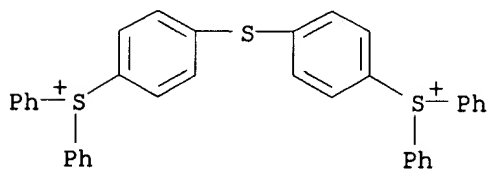
CMF C7 H4 F3 O3 S



CM 2

CRN 74227-34-2

CMF C36 H28 S3



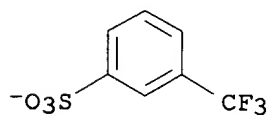
RN 398457-16-4 HCAPLUS

CN Sulfonium, triphenyl-, salt with 3-(trifluoromethyl)benzenesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 104994-84-5

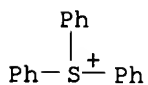
CMF C7 H4 F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



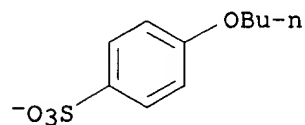
RN 406914-01-0 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
4-butoxybenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 406914-00-9

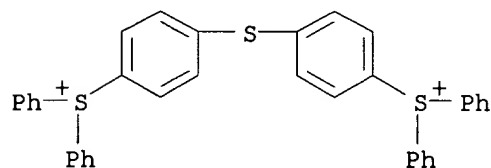
CMF C10 H13 O4 S



CM 2

CRN 74227-34-2

CMF C36 H28 S3



IT 153698-46-5P 258341-98-9P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)(acid-generating agent; alkali-sol. resin contg. styrene polymer for  
**neg. resist** compn. for x-ray/electron-beam lithog.)

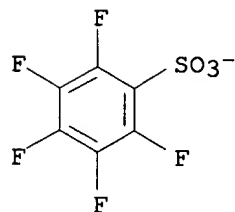
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

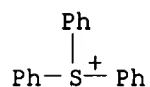
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



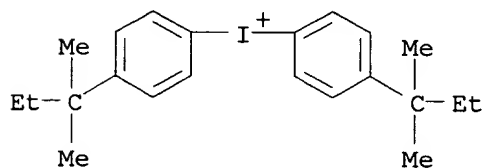
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

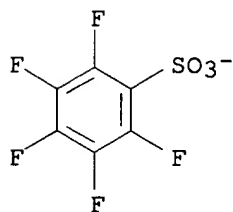
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S

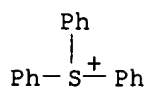
IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(alkali-sol. resin contg. styrene polymer for **neg.****photoresist** compn. for x-ray/electron-beam lithog.)

RN 3744-08-9 HCAPLUS

CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)

I<sup>-</sup>

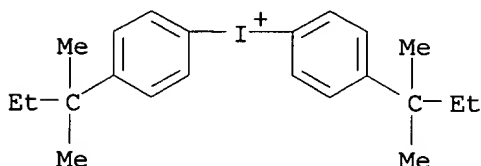
RN 258342-09-5 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

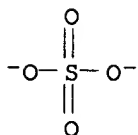
CMF C22 H30 I



CM 2

CRN 14808-79-8

CMF O4 S



IT 24979-69-9P 24979-73-5P 149614-53-9P  
 349619-43-8P 349619-47-2P 349619-51-8P  
 349619-56-3P 349619-61-0P 349619-65-4P  
 349619-68-7P 349619-72-3P 349619-76-7P  
 349619-80-3P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(alkali-sol. resin contg. styrene polymer for **neg.**  
**resist** compn. for x-ray/electron-beam lithog.)

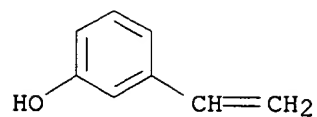
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

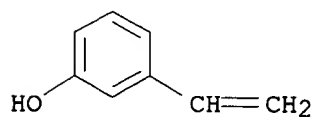
CMF C8 H8 O



RN 24979-73-5 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

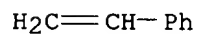
CM 1

CRN 620-18-8  
CMF C8 H8 O



CM 2

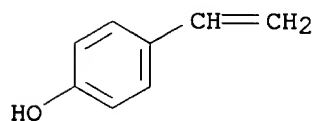
CRN 100-42-5  
CMF C8 H8



RN 149614-53-9 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

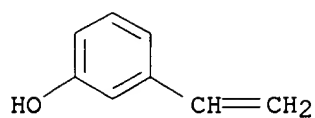
CM 1

CRN 2628-17-3  
CMF C8 H8 O



CM 2

CRN 620-18-8  
CMF C8 H8 O



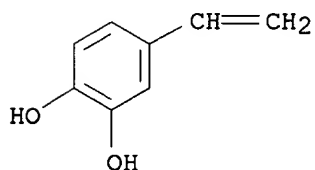
RN 349619-43-8 HCAPLUS

CN 1,2-Benzenediol, 4-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 6053-02-7

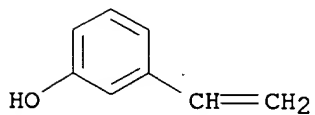
CMF C8 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



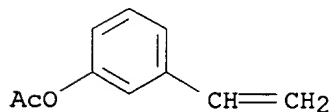
RN 349619-47-2 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 3-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

CRN 2454-30-0

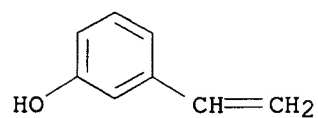
CMF C10 H10 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



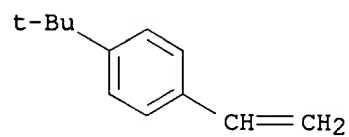
RN 349619-51-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-(1,1-dimethylethyl)-4-ethenylbenzene  
(9CI) (CA INDEX NAME)

CM 1

CRN 1746-23-2

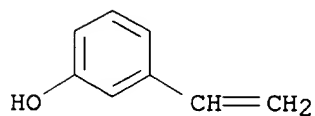
CMF C12 H16



CM 2

CRN 620-18-8

CMF C8 H8 O



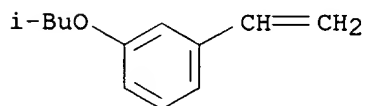
RN 349619-56-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-3-(2-methylpropoxy)benzene  
(9CI) (CA INDEX NAME)

CM 1

CRN 349619-55-2

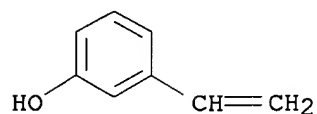
CMF C12 H16 O



CM 2



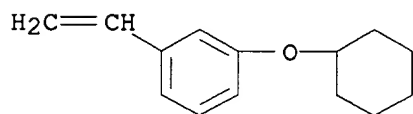
CRN 620-18-8  
CMF C8 H8 O



RN 349619-61-0 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 1-(cyclohexyloxy)-3-ethenylbenzene (9CI)  
(CA INDEX NAME)

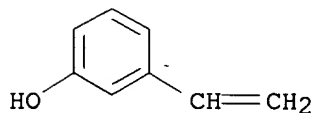
CM 1

CRN 349619-60-9  
CMF C14 H18 O



CM 2

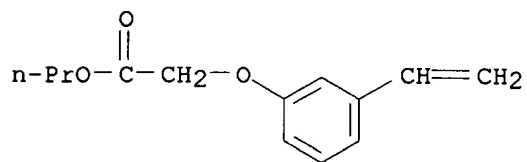
CRN 620-18-8  
CMF C8 H8 O



RN 349619-65-4 HCAPLUS  
CN Acetic acid, (3-ethenylphenoxy)-, propyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

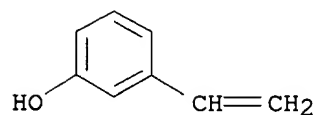
CRN 349619-64-3  
CMF C13 H16 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



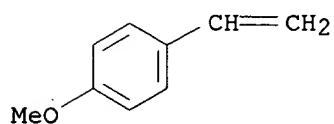
RN 349619-68-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-4-methoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 637-69-4

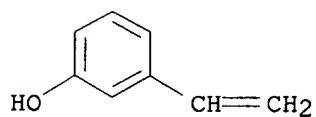
CMF C9 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



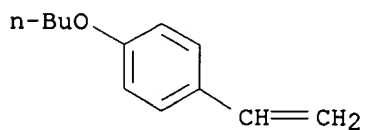
RN 349619-72-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-butoxy-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 105337-03-9

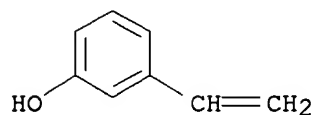
CMF C12 H16 O



CM 2

CRN 620-18-8

CMF C8 H8 O



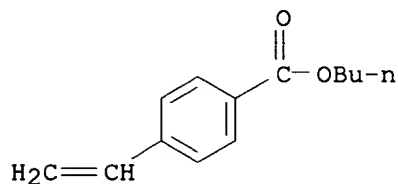
RN 349619-76-7 HCAPLUS

CN Benzoic acid, 4-ethenyl-, butyl ester, polymer with 3-ethenylphenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 2715-41-5

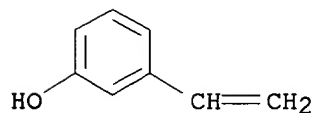
CMF C13 H16 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



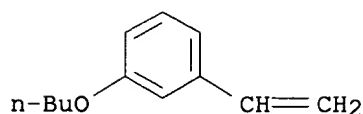
RN 349619-80-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-butoxy-3-ethenylbenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 156660-60-5

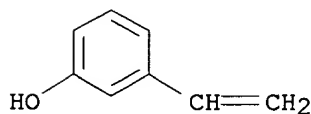
CMF C12 H16 O



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 14 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:119600 HCAPLUS

DN 136:191683

TI Negatively working electron-beam or x-ray resist composition

IN Aogo, Toshiaki

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 35 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08F002-44; C08F291-00; G03F007-004; G03F007-027; G03F007-029;  
G03F007-033; H01L021-027CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002049150	A2	20020215	JP 2000-235915	20000803
PRAI	JP 2000-235915		20000803		

AB The compn. contains (A) acid and/or radical generators by irradiation of electron beam or x-ray, (B) water-insol. and alk.-sol. polymers, (C) crosslinking agents, (D) compds. having a group capable of acid- and/or radically polymerizable unsaturated linkage in a mol., and (E) F-contg. and/or silicone surfactants. The compn. shows high sensitivity and gives high-resolution resist images with good developability to be useful for fine patterning in manufacture of semiconductor devices.

ST neg electron beam x ray resist surfactant; semiconductor device fine patterning electron beam resist; fluorine silicone surfactant resist electron beam x ray

IT Surfactants

(F- or silicone-contg.; neg. working electron-beam or x-ray resist compn.)

IT Polysiloxanes, uses

RL: TEM (Technical or engineered material use); USES (Uses)

(KP 341, surfactant; neg. working electron-beam or x-ray resist compn.)

IT X-ray **resists**  
(neg. working electron-beam or x-ray resist compn.)

IT Electron beam **resists**  
(neg.-working; neg. working electron-beam or x-ray resist compn.)

IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)

IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)

IT 71-43-2, Benzene, reactions 75-59-2, Tetramethylammonium hydroxide 832-53-1, Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide 2049-95-8, tert-Amylbenzene 7664-93-9, Sulfuric acid, reactions 7758-05-6, Potassium iodate 12027-06-4, Ammonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)

IT **270563-93-4 270563-96-7 279244-39-2 279244-43-8 349647-26-3**  
RL: CAT (Catalyst use); USES (Uses)  
(acid generator; neg. working electron-beam or x-ray resist compn.)

IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate **258341-98-9P**  
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(acid generator; neg. working electron-beam or x-ray resist compn.)

IT 162846-57-3P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(crosslinking agent from; neg. working electron-beam or x-ray resist compn.)

IT 50-00-0, Formaldehyde, reactions 110726-28-8, Trisp PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking agent from; neg. working electron-beam or x-ray resist compn.)

IT 161679-94-3P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinking agent; neg. working electron-beam or x-ray resist compn.)

IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agent; neg. working electron-beam or x-ray resist compn.)

IT 171429-59-7P 173786-80-6DP, hydrolyzed 349647-07-0P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(neg. working electron-beam or x-ray resist compn.)

IT 15625-89-5, Trimethylolpropane triacrylate 17831-71-9, Tetraethylene glycol diacrylate **24979-73-5** 29570-58-9, Dipentaerythritol hexaacrylate 110123-10-9 185405-14-5 **349647-01-4 349647-03-6 349647-04-7 349647-05-8 349647-06-9 399034-03-8**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(neg. working electron-beam or x-ray resist compn.)

IT 66003-78-9

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; neg. working electron-beam or x-ray resist compn.)

IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R 08

RL: TEM (Technical or engineered material use); USES (Uses)

(surfactant; neg. working electron-beam or x-ray resist compn.)

IT 3744-08-9P, Triphenylsulfonium iodide 258342-09-5P

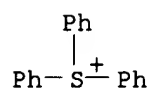
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);

RACT (Reactant or reagent)

(acid generator from; neg. working electron-beam or x-ray resist compn.)

RN 3744-08-9 HCAPLUS

CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)

I<sup>-</sup>

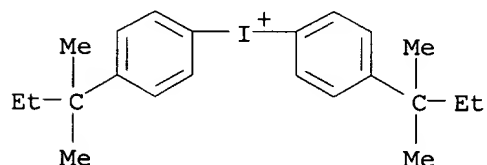
RN 258342-09-5 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

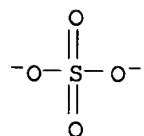
CMF C22 H30 I



CM 2

CRN 14808-79-8

CMF O4 S



IT 270563-93-4 270563-96-7 279244-39-2

**279244-43-8 349647-26-3**

RL: CAT (Catalyst use); USES (Uses)

(acid generator; neg. working electron-beam or x-ray resist compn.)

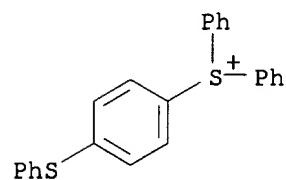
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

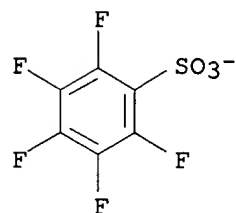
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



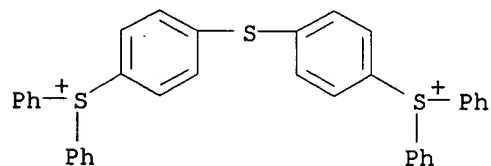
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

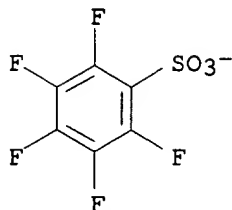
CRN 74227-34-2

CMF C36 H28 S3



CM 2

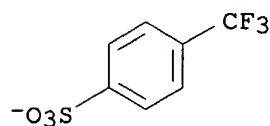
CRN 46377-88-2  
CMF C6 F5 O3 S



RN 279244-39-2 HCAPLUS  
CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

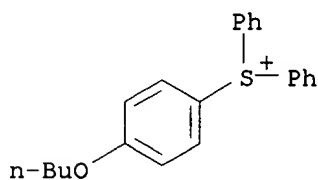
CM 1

CRN 120998-63-2  
CMF C7 H4 F3 O3 S



CM 2

CRN 112406-00-5  
CMF C22 H23 O S

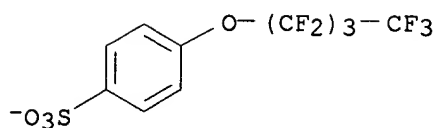


RN 279244-43-8 HCAPLUS  
CN Sulfonium, (oxydi-4,1-phenylene)bis[diphenyl-, salt with 4-(nonafluorobutoxy)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 279244-42-7  
CMF C10 H4 F9 O4 S

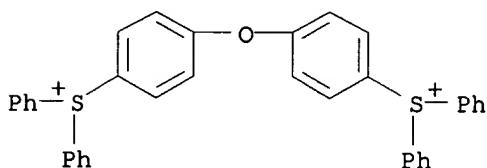




CM 2

CRN 279244-41-6

CMF C36 H28 O S2



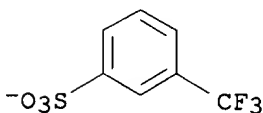
RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 104994-84-5

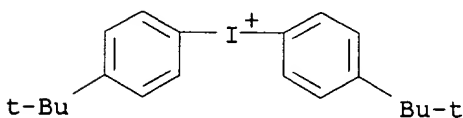
CMF C7 H4 F3 O3 S



CM 2

CRN 61267-44-5

CMF C20 H26 I

IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate  
**258341-98-9P**RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP  
(Preparation); USES (Uses)

(acid generator; neg. working electron-beam or x-ray resist compn.)

RN 153698-46-5 HCAPLUS

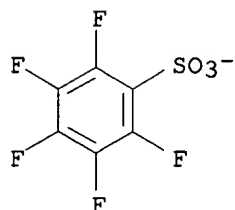
CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)

(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

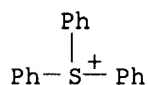
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



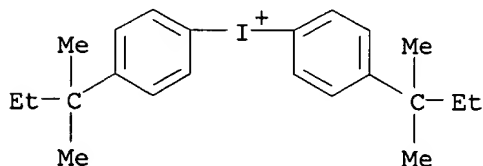
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

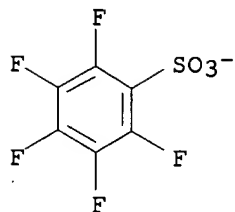
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT 24979-73-5 349647-01-4 349647-03-6

349647-04-7 399034-03-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(neg. working electron-beam or x-ray resist compn.)

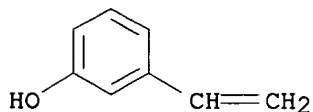
RN 24979-73-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

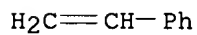
CMF C8 H8 O



CM 2

CRN 100-42-5

CMF C8 H8



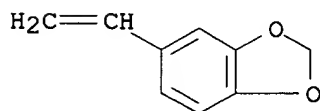
RN 349647-01-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

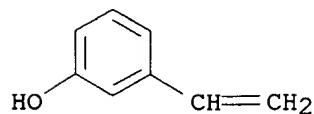
CMF C9 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



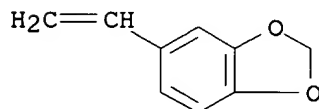
RN 349647-03-6 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene and 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

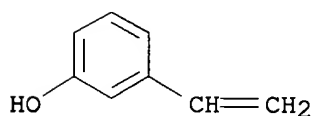
CMF C9 H8 O2



CM 2

CRN 620-18-8

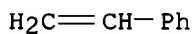
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



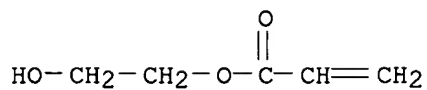
RN 349647-04-7 HCAPLUS

CN 2-Propenoic acid, 2-hydroxyethyl ester, polymer with ethenylbenzene and 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 818-61-1

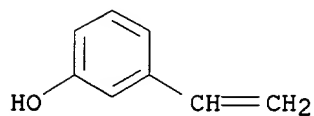
CMF C5 H8 O3



CM 2

CRN 620-18-8

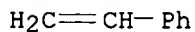
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



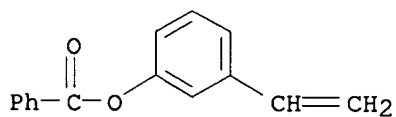
RN 399034-03-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 3-ethenylphenyl benzoate (9CI) (CA INDEX NAME)

CM 1

CRN 81913-58-8

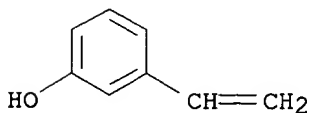
CMF C15 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 66003-78-9

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; neg. working electron-beam or x-ray resist compn.)

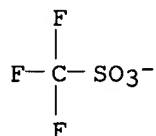
RN 66003-78-9 HCAPLUS

CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

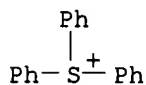
CMF C F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



L33 ANSWER 15 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:119599 HCAPLUS

DN 136:191682

TI Negatively working electron-beam or x-ray resist composition

IN Aogo, Toshiaki

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 36 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08K005-00; C08L101-12; G03F007-004; G03F007-027; H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002049149	A2	20020215	JP 2000-233120	20000801
PRAI	JP 2000-233120		20000801		

AB The compn. contains (A) acid and/or radical generators by irradiation of electron beam or x-ray, (B) water-insol. and alk.-sol. polymers, (C) crosslinking agents, (D) compounds having at least one acid- and/or radically

polymerizable unsatd. linkage in a mol., and (E) 40-90 wt.% .gtoreq.1 solvents selected from propylene glycol Me ether acetate, propylene glycol Me ether propionate, Me 3-methoxypropionate, Et 3-methoxypropionate, Me 3-ethoxypropionate, and Et 3-ethoxypropionate and 10-60 wt.% .gtoreq.1 solvents selected from propylene glycol Me ether, propylene glycol Et ether, Me lactate, Et lactate, and diacetonealc. The compn. shows high sensitivity and gives high-resoln. resist images with good developability to be useful for fine patterning in manuf. of semiconductor devices.

- ST neg electron beam x ray resist solvent; semiconductor device fine patterning electron beam resist
- IT X-ray resists  
(neg. working electron-beam or x-ray resist compn.)
- IT Electron beam resists  
(neg.-working; neg. working electron-beam or x-ray resist compn.)
- IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)
- IT 3744-08-9P, Triphenylsulfonium iodide 258342-09-5P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)
- IT 71-43-2, Benzene, reactions 75-59-2, Tetramethylammonium hydroxide 832-53-1, Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide 2049-95-8, tert-Amylbenzene 7664-93-9, Sulfuric acid, reactions 7758-05-6, Potassium iodate 12027-06-4, Ammonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acid generator from; neg. working electron-beam or x-ray resist compn.)
- IT 270563-93-4 270563-96-7 279244-39-2  
279244-43-8 349647-26-3  
RL: CAT (Catalyst use); USES (Uses)  
(acid generator; neg. working electron-beam or x-ray resist compn.)
- IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate 258341-98-9P  
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(acid generator; neg. working electron-beam or x-ray resist compn.)
- IT 162846-57-3P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(crosslinking agent from; neg. working electron-beam or x-ray resist compn.)
- IT 50-00-0, Formaldehyde, reactions 110726-28-8, Trisp PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking agent from; neg. working electron-beam or x-ray resist compn.)
- IT 161679-94-3P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(crosslinking agent; neg. working electron-beam or x-ray resist compn.)
- IT 3089-11-0 32449-09-5 185502-14-1 185502-15-2 197087-74-4  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agent; neg. working electron-beam or x-ray resist compn.)
- IT 130501-59-6P 173786-80-6DP, hydrolyzed 349647-07-0P

RL: PNU (Preparation, unclassified); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(neg. working electron-beam or x-ray resist compn.)

IT 15625-89-5, Trimethylolpropane triacrylate 17831-71-9, Tetraethylene glycol diacrylate **24979-73-5** 29570-58-9, Dipentaerythritol hexaacrylate 110123-10-9 185405-14-5 **349647-01-4** **349647-03-6** **349647-04-7** 349647-05-8 349647-06-9 **399034-03-8**

RL: TEM (Technical or engineered material use); USES (Uses)

(neg. working electron-beam or x-ray resist compn.)

IT **66003-78-9**

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; neg. working electron-beam or x-ray resist compn.)

IT 97-64-3, Ethyl lactate 123-42-2, Diacetonealcohol 763-69-9, Ethyl 3-ethoxypropionate 1320-67-8, Propylene glycol monomethyl ether 3852-09-3, Methyl 3-methoxypropionate 84540-57-8, Propylene glycol monomethyl ether acetate

RL: TEM (Technical or engineered material use); USES (Uses)

(solvent; neg. working electron-beam or x-ray resist compn.)

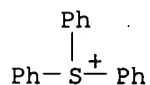
IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(acid generator from; neg. working electron-beam or x-ray resist compn.)

RN 3744-08-9 HCAPLUS

CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)



I<sup>-</sup>

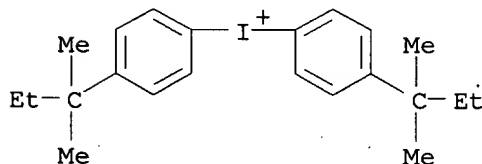
RN 258342-09-5 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

CMF C22 H30 I

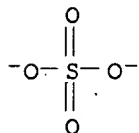


CM 2



CRN 14808-79-8

CMF 04 S



IT 270563-93-4 270563-96-7 279244-39-2

279244-43-8 349647-26-3

RL: CAT (Catalyst use); USES (Uses)

(acid generator; neg. working electron-beam or x-ray resist compn.)

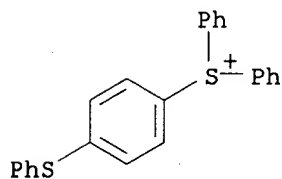
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

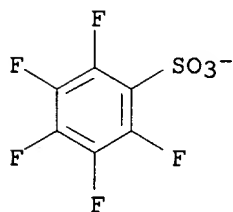
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



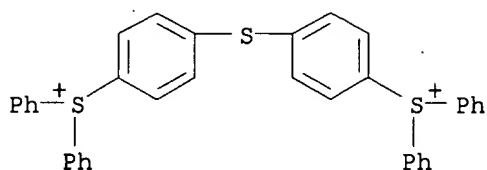
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

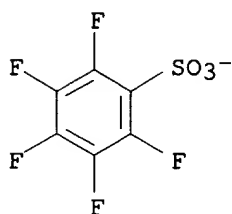
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



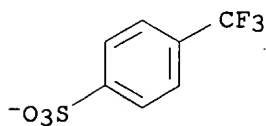
RN 279244-39-2 HCAPLUS

CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

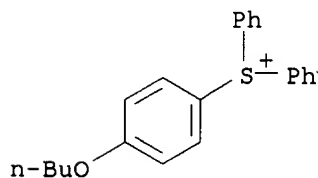
CMF C7 H4 F3 O3 S



CM 2

CRN 112406-00-5

CMF C22 H23 O S



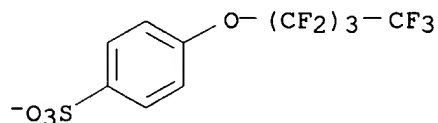
RN 279244-43-8 HCAPLUS

CN Sulfonium, (oxydi-4,1-phenylene)bis[diphenyl-, salt with  
4-(nonafluorobutoxy)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 279244-42-7

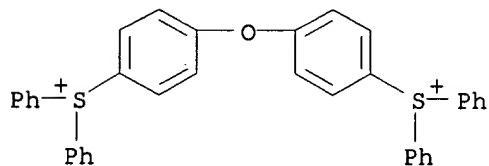
CMF C10 H4 F9 O4 S



CM 2

CRN 279244-41-6

CMF C36 H28 O S2



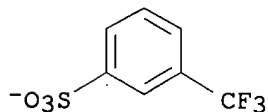
RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 104994-84-5

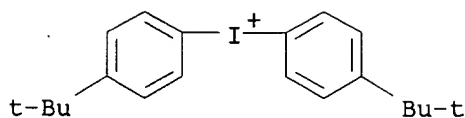
CMF C7 H4 F3 O3 S



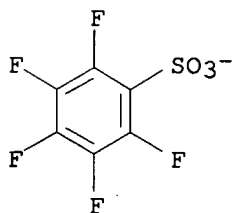
CM 2

CRN 61267-44-5

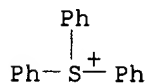
CMF C20 H26 I



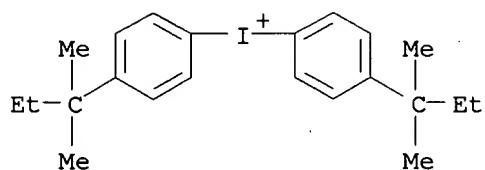
IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
 258341-98-9P  
 RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP  
 (Preparation); USES (Uses)  
 (acid generator; neg. working electron-beam or x-ray resist compn.)  
 RN 153698-46-5 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 46377-88-2  
 CMF C6 F5 O3 S



CM 2  
 CRN 18393-55-0  
 CMF C18 H15 S



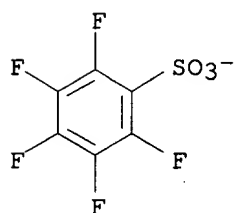
RN 258341-98-9 HCAPLUS  
 CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
 pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 249300-51-4  
 CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT 24979-73-5 349647-01-4 349647-03-6

349647-04-7 399034-03-8

RL: TEM (Technical or engineered material use); USES (Uses)  
(neg. working electron-beam or x-ray resist compn.)

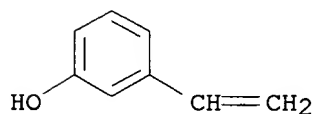
RN 24979-73-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

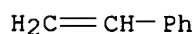
CMF C8 H8 O



CM 2

CRN 100-42-5

CMF C8 H8



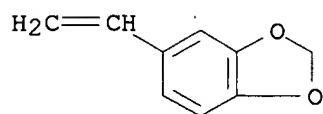
RN 349647-01-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

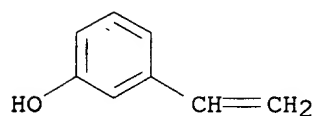
CMF C9 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



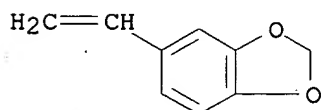
RN 349647-03-6 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene and 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

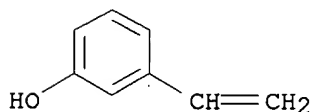
CMF C9 H8 O2



CM 2

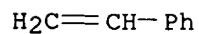
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CMF C8 H8 O



CM 3

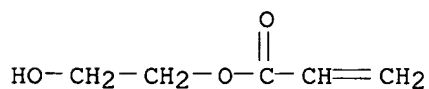
CRN 100-42-5  
CMF C8 H8



RN 349647-04-7 HCAPLUS  
CN 2-Propenoic acid, 2-hydroxyethyl ester, polymer with ethenylbenzene and 3-ethenylphenol (9CI) (CA INDEX NAME)

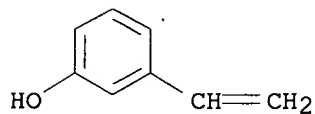
CM 1

CRN 818-61-1  
CMF C5 H8 O3



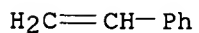
CM 2

CRN 620-18-8  
CMF C8 H8 O



CM 3

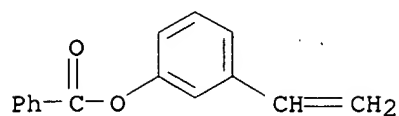
CRN 100-42-5  
CMF C8 H8



RN 399034-03-8 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 3-ethenylphenyl benzoate (9CI) (CA INDEX NAME)

CM 1

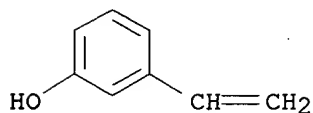
CRN 81913-58-8  
CMF C15 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 66003-78-9

RL: CAT (Catalyst use); USES (Uses)

(photoacid generator; neg. working electron-beam or x-ray resist compn.)

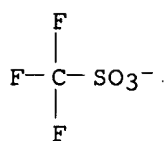
RN 66003-78-9 HCAPLUS

CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

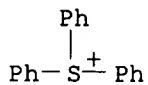
CMF C F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



L33 ANSWER 16 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2002:47839 HCAPLUS

DN 136:126534

TI Electron beam- or x-ray **negative-working resist**



compositions for fine processing of semiconductor devices

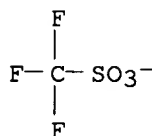
IN Aogo, Toshiaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 48 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS C08F290-12; C08K005-00; C08K005-13; C08L025-18; G03F007-004;  
 G03F007-027; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 76

FAN.CNT 1

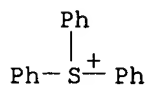
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002014470	A2	20020118	JP 2000-194756	20000628
PRAI	JP 2000-194756		20000628		
AB	The compns. comprise (A) acid- and/or radical species-generating compds. by radiation of electron beam or x ray, (B) water-insol. and alkali aq. soln.-sol. polymers having .gtoreq.1 unsatd. bonds polymerizable by acids and/or radicals, (C) agents crosslinking with B by acids, and (D) solvents contg. (a) 40-90% of .gtoreq.1 solvents selected from propylene glycol monomethyl ether acetate, propylene glycol monomethyl ether propionate, Me 3-methoxypropionate, Et 3-methoxypropionate, Me 3-ethoxypropionate, and Et 3-ethoxypropionate and (b) 10-60% of .gtoreq.1 solvents selected from propylene glycol monomethyl ether, propylene glycol monoethyl ether, Me lactate, Et lactate, and diacetone alc. The compns. show high sensitivity and resoln., good coatability, and decreased development defects and give rectangular profiles.				
ST	electron beam <b>neg resist</b> solvent blend semiconductor manuf; x ray <b>neg resist</b> solvent blend semiconductor manuf				
IT	Semiconductor device fabrication Solvents (electron-beam or x-ray <b>neg. photoresists</b> contg. solvent mixts. for fine processing of semiconductors)				
IT	Electron beam <b>resists</b> X-ray <b>resists</b> ( <b>neg.</b> -working; electron-beam or x-ray <b>neg. photoresists</b> contg. solvent mixts. for fine processing of semiconductors)				
IT	66003-78-9 270563-93-4 270563-96-7 279244-39-2 279244-43-8 349647-26-3 RL: CAT (Catalyst use); USES (Uses) (acid generators; electron-beam or x-ray <b>neg. photoresists</b> contg. solvent mixts. for fine processing of semiconductors)				
IT	153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate 258341-98-9P 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses) (acid generators; electron-beam or x-ray <b>neg. photoresists</b> contg. solvent mixts. for fine processing of semiconductors)				
IT	185502-14-1P RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP				

- (Preparation); USES (Uses)  
(crosslinking agents; electron-beam or x-ray **neg.**  
**photoresists** contg. solvent mixts. for fine processing of  
semiconductors)
- IT 161679-94-3P 162846-57-3P 185502-15-2P 197087-74-4P  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(crosslinking agents; electron-beam or x-ray **neg.**  
**photoresists** contg. solvent mixts. for fine processing of  
semiconductors)
- IT 3089-11-0 32449-09-5  
RL: TEM (Technical or engineered material use); USES (Uses)  
(crosslinking agents; electron-beam or x-ray **neg.**  
**photoresists** contg. solvent mixts. for fine processing of  
semiconductors)
- IT 30030-25-2DP, reaction products with polyhydroxystyrene 54175-13-2P, VP  
15000 ester with methacrylic acid anhydride 389795-43-1P, VP 8000 ester  
with 2-isocyanatoethyl methacrylate 389795-44-2P, VP 8000 ester with  
4-styrenesulfonyl chloride  
RL: PNU (Preparation, unclassified); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(electron-beam or x-ray **neg. photoresists** contg.  
solvent mixts. for fine processing of semiconductors)
- IT 15625-89-5, Trimethylolpropane triacrylate 17831-71-9, Tetraethylene  
glycol diacrylate 29570-58-9, Dipentaerythritol hexaacrylate  
**349647-14-9 349647-18-3 349647-19-4 349647-21-8**  
**349647-23-0 349652-47-7 389634-37-1 389799-70-6**  
RL: TEM (Technical or engineered material use); USES (Uses)  
(electron-beam or x-ray **neg. photoresists** contg.  
solvent mixts. for fine processing of semiconductors)
- IT **279218-84-7P**  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)  
(intermediates in prepn. of acid generators; electron-beam or x-ray  
**neg. photoresists** contg. solvent mixts. for fine  
processing of semiconductors)
- IT 75-59-2, Tetramethylammonium hydroxide 832-53-1,  
Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide  
2049-95-8, tert-Amylbenzene **3744-08-9**, Triphenylsulfonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactants in prepn. of acid generators; electron-beam or x-ray  
**neg. photoresists** contg. solvent mixts. for fine  
processing of semiconductors)
- IT 110726-28-8, Trisp PA 161679-95-4 161679-98-7 185502-11-8  
197087-73-3  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reactants in prepn. of crosslinking agents; electron-beam or x-ray  
**neg. photoresists** contg. solvent mixts. for fine  
processing of semiconductors)
- IT 97-64-3, Ethyl lactate 123-42-2, Diacetone alcohol 547-64-8, Methyl  
lactate 763-69-9, Ethyl 3-ethoxypropionate 1320-67-8, Propylene glycol  
monomethyl ether 3852-09-3, Methyl 3-methoxypropionate 10606-42-5,  
Ethyl 3-methoxypropionate 14144-33-3, Methyl 3-ethoxypropionate  
52125-53-8, Propylene glycol monoethyl ether 84540-57-8, Propylene  
glycol monomethyl ether acetate 98516-33-7, Propylene glycol monomethyl  
ether propionate  
RL: TEM (Technical or engineered material use); USES (Uses)  
(solvents; electron-beam or x-ray **neg. photoresists**

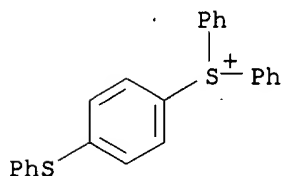
contg. solvent mixts. for fine processing of semiconductors)  
 IT 66003-78-9 270563-93-4 270563-96-7  
 279244-39-2 279244-43-8 349647-26-3  
 RL: CAT (Catalyst use); USES (Uses)  
 (acid generators; electron-beam or x-ray neg.  
**photoresists** contg. solvent mixts. for fine processing of  
 semiconductors)  
 RN 66003-78-9 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)  
 CM 1  
 CRN 37181-39-8  
 CMF C F3 O3 S



CM 2  
 CRN 18393-55-0  
 CMF C18 H15 S

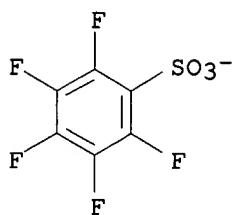


RN 270563-93-4 HCAPLUS  
 CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
 pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)  
 CM 1  
 CRN 47480-44-4  
 CMF C24 H19 S2



CM 2  
 CRN 46377-88-2

CMF C6 F5 O3 S



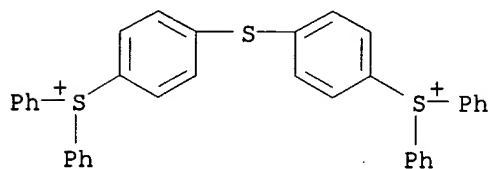
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

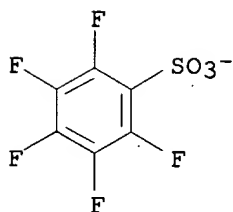
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



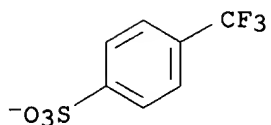
RN 279244-39-2 HCAPLUS

CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

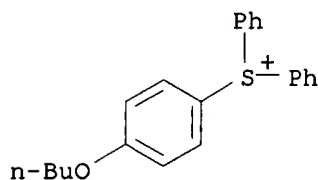
CMF C7 H4 F3 O3 S



CM 2

CRN 112406-00-5

CMF C22 H23 O S



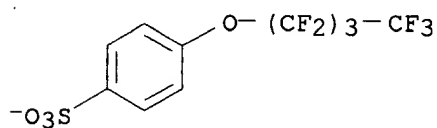
RN 279244-43-8 HCAPLUS

CN Sulfonium, (oxydi-4,1-phenylene)bis[diphenyl]-, salt with  
4-(nonafluorobutoxy)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 279244-42-7

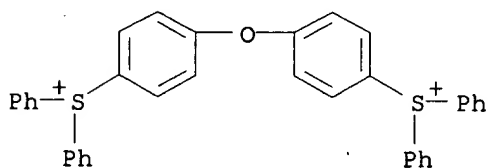
CMF C10 H4 F9 O4 S



CM 2

CRN 279244-41-6

CMF C36 H28 O S2

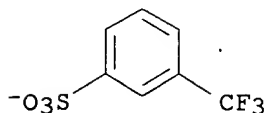


RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

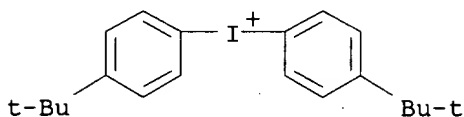
CM 1

CRN 104994-84-5  
CMF C7 H4 F3 O3 S



CM 2

CRN 61267-44-5  
CMF C20 H26 I



IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
258341-98-9P

RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP  
(Preparation); USES (Uses)

(acid generators; electron-beam or x-ray neg.

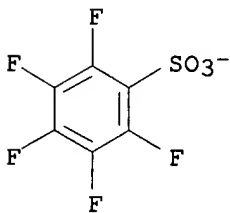
**photoresists** contg. solvent mixts. for fine processing of  
semiconductors)

RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

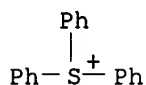
CM 1

CRN 46377-88-2  
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0  
CMF C18 H15 S



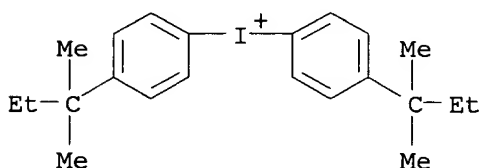
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

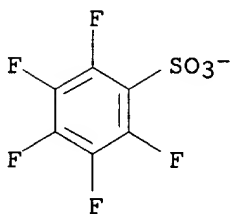
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S

IT 349647-14-9 349647-18-3 389634-37-1  
389799-70-6RL: TEM (Technical or engineered material use); USES (Uses)  
(electron-beam or x-ray **neg. photoresists** contg.  
solvent mixts. for fine processing of semiconductors)

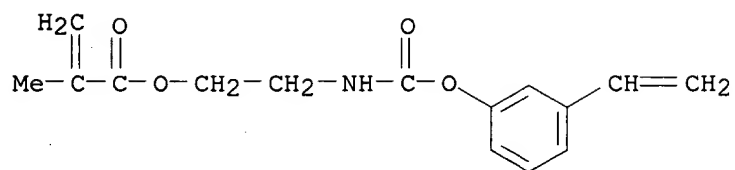
RN 349647-14-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[[[(3-ethenylphenoxy)carbonyl]amino]ethyl  
ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-13-8

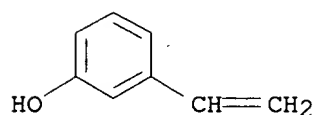
CMF C15 H17 N O4



CM 2

CRN 620-18-8

CMF C8 H8 O



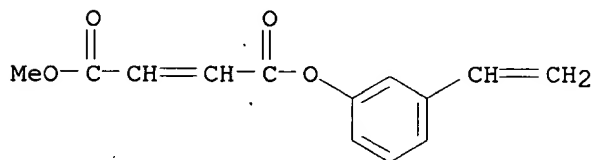
RN 349647-18-3 HCAPLUS

CN 2-Butenedioic acid, 3-ethenylphenyl methyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-17-2

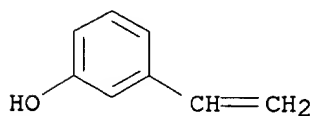
CMF C13 H12 O4



CM 2

CRN 620-18-8

CMF C8 H8 O



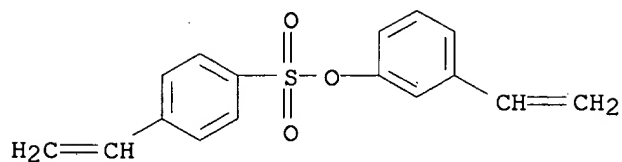
RN 389634-37-1 HCAPLUS

CN Benzenesulfonic acid, 4-ethenyl-, 3-ethenylphenyl ester, compd. with  
3-ethenylphenol (1:1) (9CI) (CA INDEX NAME)

CM 1

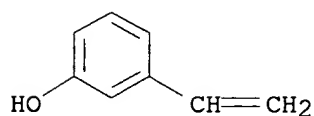


CRN 349647-15-0  
CMF C16 H14 O3 S



CM 2

CRN 620-18-8  
CMF C8 H8 O



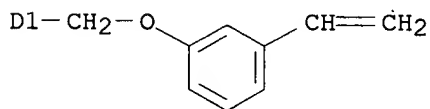
RN 389799-70-6 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene and 1-ethenyl-3-[(ethenylphenyl)methoxy]benzene (9CI) (CA INDEX NAME)

CM 1

CRN 389799-69-3  
CMF C17 H16 O  
CCI IDS

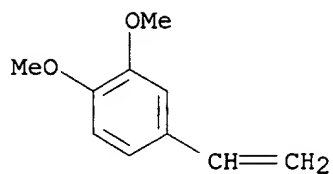


D1-  $\text{CH}=\text{CH}_2$



CM 2

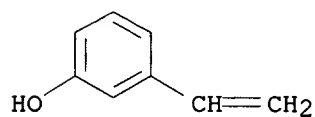
CRN 6380-23-0  
CMF C10 H12 O2



CM 3

CRN 620-18-8

CMF C8 H8 O



IT 279218-84-7P

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
RACT (Reactant or reagent)(intermediates in prepn. of acid generators; electron-beam or x-ray  
**neg. photoresists** contg. solvent mixts. for fine  
processing of semiconductors)

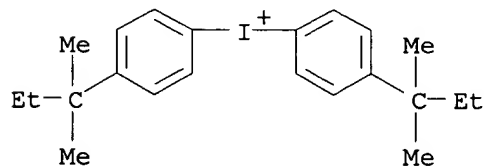
RN 279218-84-7 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1) (9CI) (CA  
INDEX NAME)

CM 1

CRN 249300-51-4

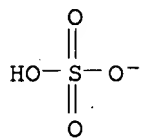
CMF C22 H30 I



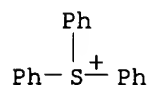
CM 2

CRN 14996-02-2

CMF H O4 S



IT 3744-08-9, Triphenylsulfonium iodide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactants in prepn. of acid generators; electron-beam or x-ray  
**neg. photoresists** contg. solvent mixts. for fine  
 processing of semiconductors)  
 RN 3744-08-9 HCAPLUS  
 CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)

I<sup>-</sup>

L33 ANSWER 17 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2002:26267 HCAPLUS  
 DN 136:93496  
 TI Electron beam- or x-ray-sensitive chemically amplified **negative**  
 -working **photoresist** composition for semiconductor device  
 fabrication  
 IN Aogo, Toshiaki  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 47 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS C08F002-50; C08F012-34; C08F016-12; C08F016-36; C08F020-10;  
 C08F020-54; C08F022-30; C08F028-02; C08F290-00; C08F290-12;  
 C08F299-00; G03F007-004; G03F007-027; H01L021-027  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 76  
 FAN: CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002006491	A2	20020109	JP 2000-193140	20000627
PRAI	JP 2000-193140		20000627		

AB The title compn. contains an electron beam- or x-ray sensitive acid  
 generator, a resin, which has .gtoreq.1 unsat. groups for acid- or  
 radical-initiated polymn. and which becomes sol. in an alkali soln., an  
 acid-sensitive crosslinking agent, and a fluoro- or silicone surfactant.  
 The compn. provides the good resolu., the high sensitivity, and the good  
 pattern profile.  
 ST electron beam x ray sensitive **neg working photoresist**

- compn  
IT Ion beam resists  
Semiconductor device fabrication  
X-ray resists  
(electron beam- or x-ray-sensitive **neg.**-working  
**photoresist** compn.)
- IT 75-59-2, Tetramethylammonium hydroxide 832-53-1,  
Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenyl sulfoxide  
2049-95-8, tert-Amylbenzene 7664-93-9, Sulfuric acid, reactions  
7758-05-6, Potassium iodate 12027-06-4, Ammonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(acid generator in chem. amplified **neg.**-working  
**photoresist** compn.)
- IT 3744-08-9, Triphenylsulfonium iodide  
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT  
(Reactant or reagent)  
(acid generator in chem. amplified **neg.**-working  
**photoresist** compn.)
- IT 258341-98-9 270564-02-8, Tetramethylammonium  
pentafluorobenzenesulfonate 279218-84-7, Iodonium,  
bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1)  
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)  
(acid generator in chem. amplified **neg.**-working  
**photoresist** compn.)
- IT 153698-46-5, Triphenylsulfonium pentafluorobenzenesulfonate  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(acid generator in chem. amplified **neg.**-working  
**photoresist** compn.)
- IT 270563-93-4 270563-96-7 279244-39-2  
279244-43-8 349647-26-3  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(acid generator in electron beam- or x-ray-sensitive chem. amplified  
**neg.**-working **photoresist** compn.)
- IT 50-00-0, Formaldehyde, reactions 67-56-1, Methanol, reactions  
110726-28-8, Tris-PA  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(crosslinking agent in electron beam- or x-ray-sensitive chem.  
amplified **neg.**-working **photoresist** compn.)
- IT 162846-57-3  
RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or  
engineered material use); PREP (Preparation); RACT (Reactant or reagent);  
USES (Uses)  
(crosslinking agent in electron beam- or x-ray-sensitive chem.  
amplified **neg.**-working **photoresist** compn.)
- IT 3089-11-0 32449-09-5 161679-94-3 185502-15-2 197087-74-4  
RL: SPN (Synthetic preparation); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(crosslinking agent in electron beam- or x-ray-sensitive chem.  
amplified **neg.**-working **photoresist** compn.)
- IT 2633-67-2D, 4-Styrenesulfonyl chloride, reaction product with  
hydroxystyrene polymer 24979-70-2D, Vp 8000, reaction product with  
olefinic compd. 30030-25-2D, reaction product with hydroxystyrene  
polymer 30674-80-7D, 2-Isocyanatoethyl methacrylate, reaction product  
with hydroxystyrene polymer 54175-13-2

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(resin in chem. amplified **neg.**-working **photoresist** compn.)

IT 349647-08-1 349647-10-5 349647-12-7 **349647-14-9**  
**349647-16-1 349647-18-3** 349647-19-4 349647-21-8  
349647-23-0 349652-45-5 349652-47-7 **349652-48-8**

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(resin in electron beam- or x-ray-sensitive chem. amplified **neg** .-working **photoresist** compn.)

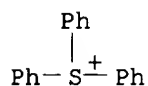
IT **3744-08-9**, Triphenylsulfonium iodide

RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

(acid generator in chem. amplified **neg.**-working **photoresist** compn.)

RN 3744-08-9 HCAPLUS

CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)



I<sup>-</sup>

IT **258341-98-9 279218-84-7**, Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1)

RL: RCT (Reactant); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)

(acid generator in chem. amplified **neg.**-working **photoresist** compn.)

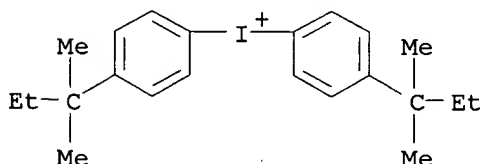
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

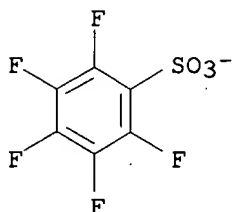
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



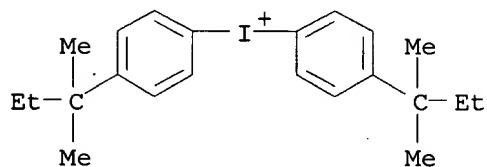
RN 279218-84-7 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

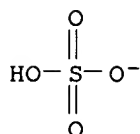
CMF C22 H30 I



CM 2

CRN 14996-02-2

CMF H O4 S



IT 153698-46-5, Triphenylsulfonium pentafluorobenzenesulfonate

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid generator in chem. amplified neg.-working

**photoresist** compn.)

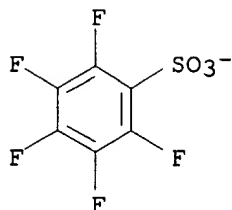
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

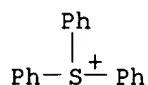
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



IT 270563-93-4 270563-96-7 279244-39-2

279244-43-8 349647-26-3

RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(acid generator in electron beam- or x-ray-sensitive chem. amplified neg.-working photoresist compn.)

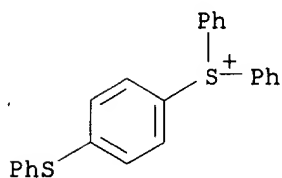
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

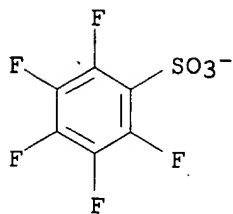
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



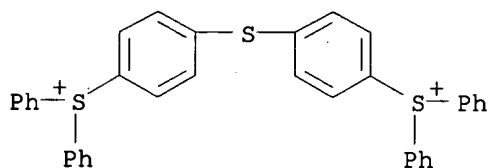
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

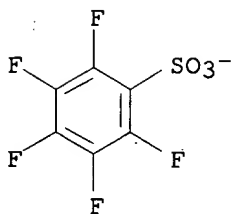
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



RN 279244-39-2 HCAPLUS

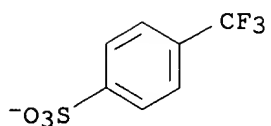
CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 120998-63-2

CMF C7 H4 F3 O3 S

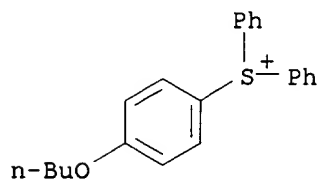




CM 2

CRN 112406-00-5

CMF C22 H23 O S



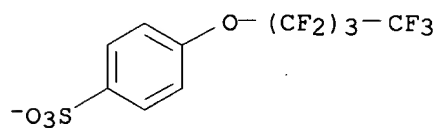
RN 279244-43-8 HCAPLUS

CN Sulfonium, (oxydi-4,1-phenylene)bis[diphenyl]-, salt with  
4-(nonafluorobutoxy)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 279244-42-7

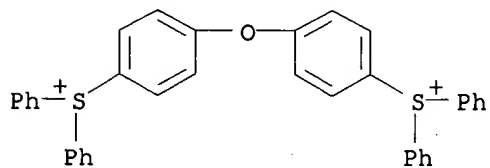
CMF C10 H4 F9 O4 S



CM 2

CRN 279244-41-6

CMF C36 H28 O S2

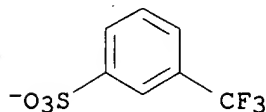


RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

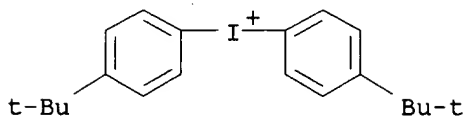
CM 1

CRN 104994-84-5  
CMF C7 H4 F3 O3 S



CM 2

CRN 61267-44-5  
CMF C20 H26 I



IT 349647-14-9 349647-16-1 349647-18-3  
349652-48-8

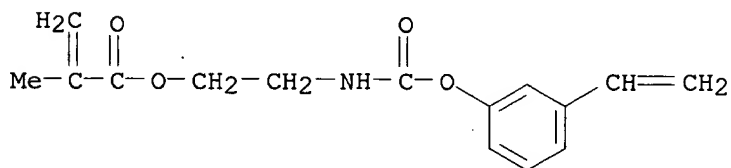
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(resin in electron beam- or x-ray-sensitive chem. amplified **neg** .-working **photoresist** compn.)

RN 349647-14-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[[[(3-ethenylphenoxy)carbonyl]amino]ethyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

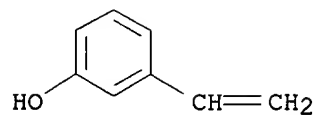
CM 1

CRN 349647-13-8  
CMF C15 H17 N O4



CM 2

CRN 620-18-8  
CMF C8 H8 O



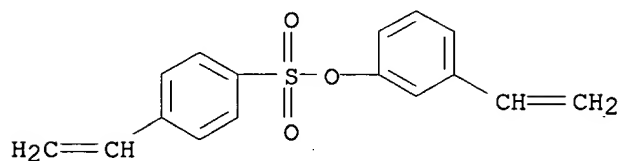
RN 349647-16-1 HCAPLUS

CN Benzenesulfonic acid, 4-ethenyl-, 3-ethenylphenyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-15-0

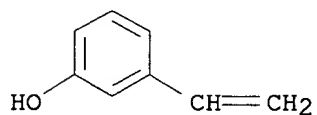
CMF C16 H14 O3 S



CM 2

CRN 620-18-8

CMF C8 H8 O



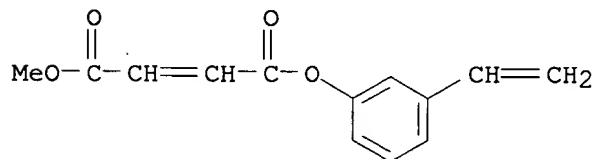
RN 349647-18-3 HCAPLUS

CN 2-Butenedioic acid, 3-ethenylphenyl methyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-17-2

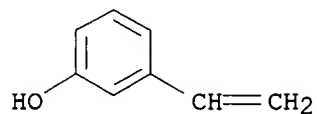
CMF C13 H12 O4



CM 2

CRN 620-18-8

CMF C8 H8 O



RN 349652-48-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene and ethenyl[(4-ethenylphenoxy)methyl]benzene (9CI) (CA INDEX NAME)

CM 1

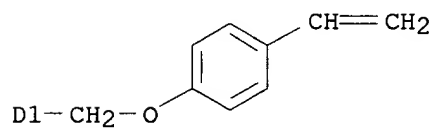
CRN 349652-44-4

CMF C17 H16 O

CCI IDS



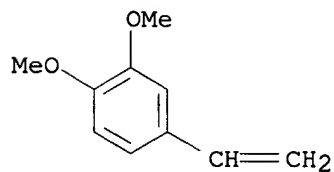
D1-CH=CH2



CM 2

CRN 6380-23-0

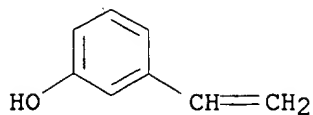
CMF C10 H12 O2



CM 3

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 18 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
 AN 2001:654962 HCAPLUS  
 DN 135:218735  
 TI Chemically amplified radiation-sensitive **negative**  
**resists** containing acid generators associating fluorinated anions  
 IN Adegawa, Yutaka  
 PA Fuji Photo Film Co., Ltd., Japan  
 SO Jpn. Kokai Tokkyo Koho, 30 pp.  
 CODEN: JKXXAF  
 DT Patent  
 LA Japanese  
 IC ICM G03F007-038  
 ICS C08F012-24; C08K005-375; C08L025-18; C08L101-06; G03F007-004;  
 H01L021-027; C07C025-18; C07C043-23; C07C233-25; C07C381-12  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)  
 Section cross-reference(s): 38, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
	-----	---	-----	-----	-----
PI	JP 2001242625	A2	20010907	JP 2000-49639	20000225
PRAI	JP 2000-49639		20000225		
OS	MARPAT 135:218735				
GI					

\* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT \*

AB The resists, useful for x-ray or electron-beam lithog., comprise (A) alkali-sol: resins contg. (hydrogenated) poly(vinyl phenol) alk(en)yl or aryl(alkyl) ethers, (B) acid-sensitive crosslinking agents, and (C) radiation-sensitive acid generators I-III [R1-37 = H, alkyl(oxy), OH, halo, SR38 (R38 = alkyl, aryl); X = fluorobenzenesulfonate, fluoronaphthalenesulfonate, or fluoroanthracenesulfonate anion]. The resists show good balance of resolu., sensitivity, and pattern profile and are useful for semiconductor fabrication process.

ST radiation sensitive **neg resist** acid generator;  
 hydroxystyrene ether electron beam resist microfabrication;  
 phenylsulfonium fluorobenzenesulfonate radiation sensitive acid generator;  
 amyphenyliodinium acid generator radiation sensitive resist

IT **Resists**  
 (neg.-working, radiation-sensitive, chem. amplified;  
 radiation-sensitive resists contg. fluorinated-anion-assocd. onium  
 salts as acid generators)

IT Crosslinking agents  
 (radiation sensitive; radiation-sensitive resists contg.  
 fluorinated-anion-assocd. onium salts as acid generators)

- IT Electron beam lithography  
Semiconductor device fabrication  
X-ray lithography  
(radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT **Resists**  
(radiation-sensitive, **neg.**, chem.-amplified;  
radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
**279218-84-7P**  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(in prepn. of radiation-sensitive acid generators for chem. amplified **neg. resists**)
- IT 75-59-2, Tetramethylammonium hydroxide 832-53-1,  
Pentafluorobenzenesulfonyl chloride 945-51-7, Diphenylsulfoxide  
2049-95-8, tert-Amylbenzene **3744-08-9**, Triphenylsulfonium iodide  
7758-05-6, Potassium iodate 12027-06-4, Ammonium iodide  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in prepn. of radiation-sensitive acid generators for chem. amplified **neg. resists**)
- IT 50-00-0, Formalin, reactions 79-30-1, Isobutyryl chloride 123-30-8,  
p-Aminophenol  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(in prepn. of radiation-sensitive crosslinking agents for chem. amplified **neg. resists**)
- IT 74-88-4, Methyl iodide, reactions  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(methylation agents; in prepn. of etherized poly(vinyl phenols) for radiation-sensitive chem. amplified resists)
- IT **270563-93-4**  
RL: CAT (Catalyst use); USES (Uses)  
(radiation-sensitive acid generators; radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate  
**338445-34-4P**  
RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(radiation-sensitive acid generators; radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT **24979-69-9DP**, ethers 24979-70-2DP, VP 8000, Me ethers  
95418-60-3DP, 4-tert-Butoxystyrene homopolymer, hydrolyzed  
**149614-53-9DP**, 3-Hydroxystyrene-4-hydroxystyrene copolymer, ethers  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT 110726-28-8DP, Trisp PA, hydroxymethylated or methoxymethylated  
244057-73-6P  
RL: PNU (Preparation, unclassified); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)
- IT 1320-67-8, Propylene glycol monomethyl ether 84540-57-8, Propylene glycol monomethyl ether acetate  
RL: TEM (Technical or engineered material use); USES (Uses)

(radiation-sensitive resists contg. fluorinated-anion-assocd. onium salts as acid generators)

IT **279218-84-7P**

RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)

(in prepn. of radiation-sensitive acid generators for chem. amplified neg. resists)

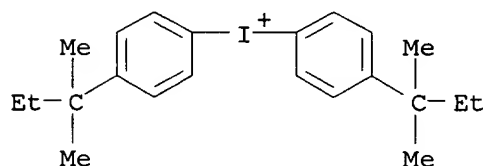
RN 279218-84-7 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

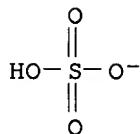
CMF C22 H30 I



CM 2

CRN 14996-02-2

CMF H 04 S



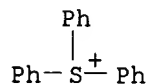
IT **3744-08-9**, Triphenylsulfonium iodide

RL: RCT (Reactant); RACT (Reactant or reagent)

(in prepn. of radiation-sensitive acid generators for chem. amplified neg. resists)

RN 3744-08-9 HCAPLUS

CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)



I<sup>-</sup>

IT **270563-93-4**

RL: CAT (Catalyst use); USES (Uses)

(radiation-sensitive acid generators; radiation-sensitive resists  
contg. fluorinated-anion-assocd. onium salts as acid generators)

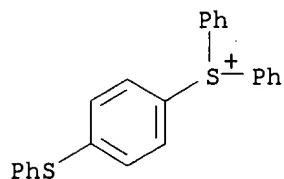
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

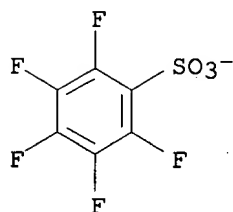
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate  
**338445-34-4P**

RL: CAT (Catalyst use); PNU (Preparation, unclassified); PREP  
(Preparation); USES (Uses)

(radiation-sensitive acid generators; radiation-sensitive resists  
contg. fluorinated-anion-assocd. onium salts as acid generators)

RN 153698-46-5 HCAPLUS

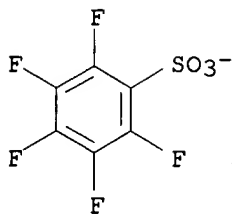
CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

CMF C6 F5 O3 S

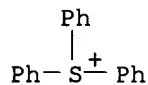




CM 2

CRN 18393-55-0

CMF C18 H15 S



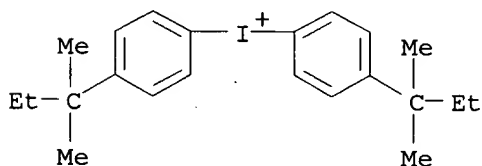
RN 338445-34-4 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluoroethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

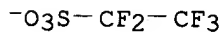
CMF C22 H30 I



CM 2

CRN 108410-37-3

CMF C2 F5 O3 S

IT **24979-69-9DP**, ethers **149614-53-9DP**, 3-Hydroxystyrene-4-  
hydroxystyrene copolymer, ethersRL: IMF (Industrial manufacture); TEM (Technical or engineered material  
use); PREP (Preparation); USES (Uses)  
(radiation-sensitive resists contg. fluorinated-anion-assocd. onium  
salts as acid generators)

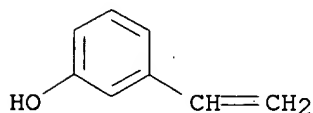
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



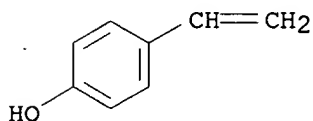
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

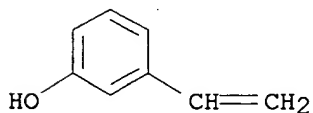
CMF C8 H8 O



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 19 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:524739 HCAPLUS

DN 135:114444

TI Electron beam or x-ray **negative-working resist**  
composition

IN Aoai, Toshiaki; Adegawa, Yutaka; Yagihara, Morio

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 85 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G03F007-038

ICS G03F007-004; G03F007-028

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

Section cross-reference(s): 35, 36, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1117004	A2	20010718	EP 2001-100113	20010112
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001337452	A2	20011207	JP 2001-5374	20010112
PRAI	JP 2000-4766	A	20000113		
	JP 2000-84469	A	20000324		
AB	The invention relates to a <b>neg.-working resist</b> compn. useful for super microlithog. such as VLSI and high-capacity microchips and to a compn. capable of forming microfine patterns using X-rays and an electron beam, and to a compn. suitable for working of semiconductor devices using an electron beam. A <b>neg.-working resist</b> compn. for electron beams or x-rays comprises (a) a compd. generating an acid and/or radical species by the irradiation of electron beams or x-rays, (b) a resin which is insol. in H <sub>2</sub> O and sol. in an alkali aq. soln., (c) a crosslinking agent causing crosslinking with the resin of component (b) by the action of an acid, and (d) a compd. having .gtoreq.1 unsatd. bond capable of being polymd. by an acid and/or a radical, and a <b>neg.-working resist</b> compn. for electron beams or x-rays comprising (a) a compd. generating an acid and/or radical species by the irradiation of electron beams or x-rays, (b') a resin having .gtoreq.1 unsatd. bond polymerizable by an acid and/or an alkali, which is insol. in H <sub>2</sub> O but sol. in an alkali aq. soln., and (c) a crosslinking agent causing crosslinking with the resin (b') by the action of an acid are disclosed.				
ST	electron beam x ray <b>neg photoresist</b> crosslinking hydroxystyrene polymer				
IT	<b>Photoresists</b> (chem.-amplified; <b>neg.-working photoresist</b> compn. for X-ray or electron beam lithog. contg. alkali-sol. resin and acidic crosslinking agent)				
IT	Crosslinking agents Electron beam lithography X-ray lithography ( <b>neg.-working photoresist</b> compn. for X-ray or electron beam lithog. contg. alkali-sol. resin and acidic crosslinking agent)				
IT	3089-11-0P 32449-09-5P RL: DEV (Device component use); IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) (crosslinking agent; crosslinking agent for <b>neg.-working photoresist</b> compn. for X-ray or electron beam lithog.)				
IT	153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate 168634-95-5P 258341-98-9P 270563-93-4P 270563-96-7P 279244-43-8P 349619-92-7P 349647-26-3P RL: DEV (Device component use); IMF (Industrial manufacture); MOA (Modifier or additive use); PREP (Preparation); USES (Uses) (photoacid generator; acid-generating agent in <b>neg.-working photoresist</b> compn. for X-ray or electron beam lithog.)				
IT	15625-89-5, Trimethylolpropane triacrylate 17831-71-9, Tetraethyleneglycol diacrylate 29570-58-9, Dipentaerythritol hexaacrylate RL: DEV (Device component use); NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses) (polymerizable monomer in <b>neg.-working photoresist</b>				

compn. for X-ray or electron beam lithog.)

IT 161679-94-3P 161679-95-4P 161679-98-7P 162846-57-3P 185502-11-8P  
 185502-14-1P 185502-15-2P 197087-73-3P 197087-74-4P  
 RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
 (Modifier or additive use); SPN (Synthetic preparation); PREP  
 (Preparation); USES (Uses)  
 (synthesis of acid crosslinking agent for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

IT 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
 RL: DEV (Device component use); IMF (Industrial manufacture); SPN  
 (Synthetic preparation); PREP (Preparation); USES (Uses)  
 (synthesis of acid-generating agent for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

IT 24979-73-5P, 3-Hydroxystyrene-styrene copolymer 24979-74-6P,  
 4-Hydroxystyrene-styrene copolymer 110123-10-9P, 4-Hydroxystyrene-2-  
 hydroxyethyl acrylate copolymer 171429-59-7P, 4-Hydroxystyrene-4-  
 acetoxystyrene copolymer 185405-14-5P **349647-01-4P**  
**349647-02-5P 349647-03-6P 349647-04-7P**  
 349647-05-8P 349647-06-9P 349647-07-0P 349647-08-1P 349647-10-5P  
 349647-12-7P **349647-14-9P 349647-16-1P**  
**349647-18-3P** 349647-19-4P 349647-21-8P 349647-23-0P  
 349652-45-5P 349652-47-7P **349652-48-8P**  
 RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer  
 in formulation); SPN (Synthetic preparation); TEM (Technical or engineered  
 material use); PREP (Preparation); USES (Uses)  
 (synthesis of alkali-sol. resin for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

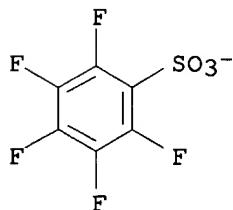
IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
**168634-95-5P 258341-98-9P 270563-93-4P**  
**270563-96-7P 279244-43-8P 349619-92-7P**  
**349647-26-3P**  
 RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
 (Modifier or additive use); PREP (Preparation); USES (Uses)  
 (photoacid generator; acid-generating agent in **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

RN 153698-46-5 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
 (9CI) (CA INDEX NAME)

CM 1

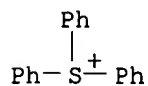
CRN 46377-88-2

CMF C6 F5 O3 S



CM 2

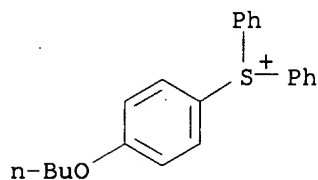
CRN 18393-55-0  
CMF C18 H15 S



RN 168634-95-5 HCAPLUS  
CN Sulfonium, (4-butoxyphenyl)diphenyl-, salt with 4-methylbenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

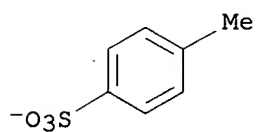
CM 1

CRN 112406-00-5  
CMF C22 H23 O S



CM 2

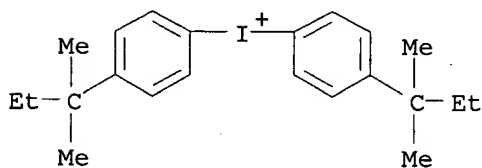
CRN 16722-51-3  
CMF C7 H7 O3 S



RN 258341-98-9 HCAPLUS  
CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

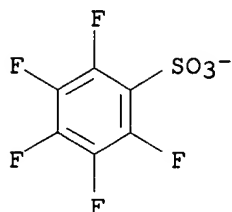
CRN 249300-51-4  
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



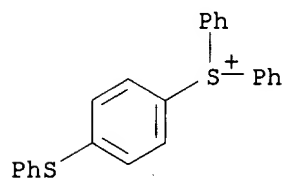
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

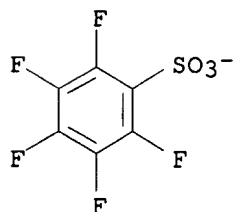
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



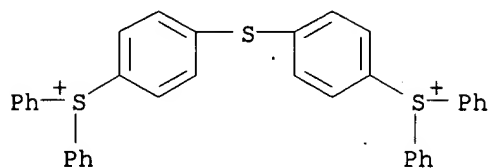
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

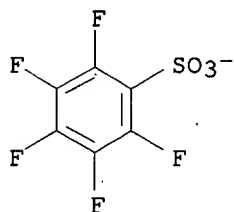
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



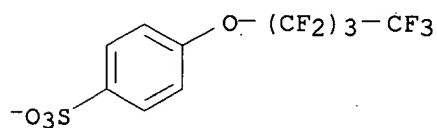
RN 279244-43-8 HCAPLUS

CN Sulfonium, (oxydi-4,1-phenylene)bis[diphenyl-, salt with  
4-(nonafluorobutoxy)benzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 279244-42-7

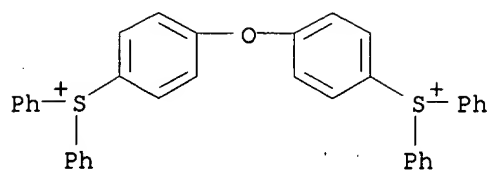
CMF C10 H4 F9 O4 S



CM 2

CRN 279244-41-6

CMF C36 H28 O S2



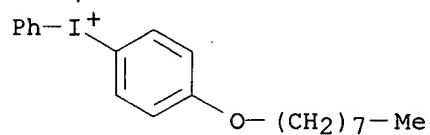
RN 349619-92-7 HCAPLUS

CN Iodonium, [4-(octyloxy)phenyl]phenyl-, salt with 4-fluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 121239-74-5

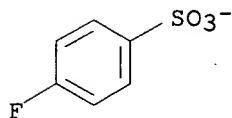
CMF C20 H26 I O



CM 2

CRN 61657-38-3

CMF C6 H4 F O3 S



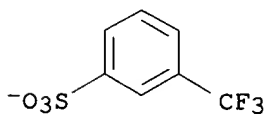
RN 349647-26-3 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with 3-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 104994-84-5

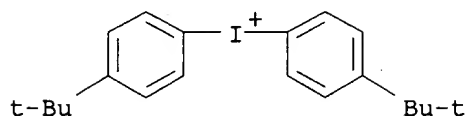
CMF C7 H4 F3 O3 S



CM 2



CRN 61267-44-5  
CMF C20 H26 I



IT 24979-73-5P, 3-Hydroxystyrene-styrene copolymer

349647-01-4P 349647-02-5P 349647-03-6P

349647-04-7P 349647-14-9P 349647-16-1P

349647-18-3P 349652-48-8P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

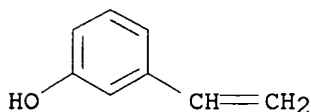
(synthesis of alkali-sol. resin for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

RN 24979-73-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8  
CMF C8 H8 O



CM 2

CRN 100-42-5  
CMF C8 H8

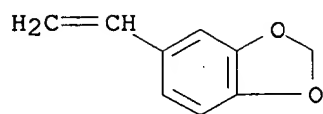
H<sub>2</sub>C=CH-Ph

RN 349647-01-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

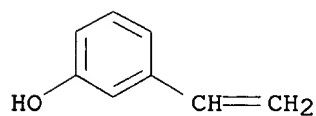
CRN 7315-32-4  
CMF C9 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



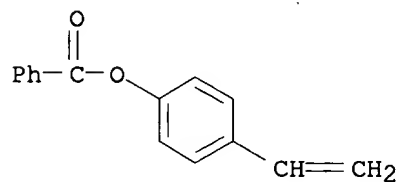
RN 349647-02-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenyl benzoate (9CI) (CA INDEX NAME)

CM 1

CRN 32568-59-5

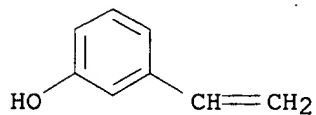
CMF C15 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



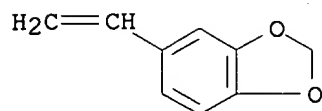
RN 349647-03-6 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene and 5-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 7315-32-4

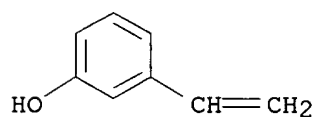
CMF C9 H8 O2



CM 2

CRN 620-18-8

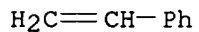
CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8



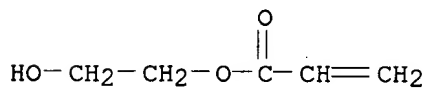
RN 349647-04-7 HCAPLUS

CN 2-Propenoic acid, 2-hydroxyethyl ester, polymer with ethenylbenzene and 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 818-61-1

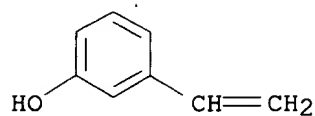
CMF C5 H8 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



CM 3

CRN 100-42-5

CMF C8 H8

 $\text{H}_2\text{C}=\text{CH}-\text{Ph}$ 

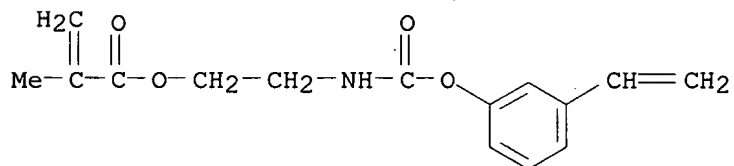
RN 349647-14-9 HCAPLUS

CN 2-Propenoic acid, 2-methyl-, 2-[[[(3-ethenylphenoxy)carbonyl]amino]ethyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-13-8

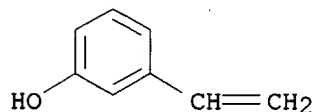
CMF C15 H17 N O4



CM 2

CRN 620-18-8

CMF C8 H8 O



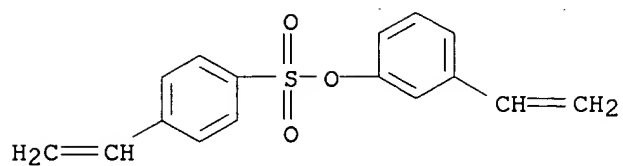
RN 349647-16-1 HCAPLUS

CN Benzenesulfonic acid, 4-ethenyl-, 3-ethenylphenyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-15-0

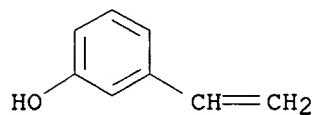
CMF C16 H14 O3 S



CM 2

CRN 620-18-8

CMF C8 H8 O



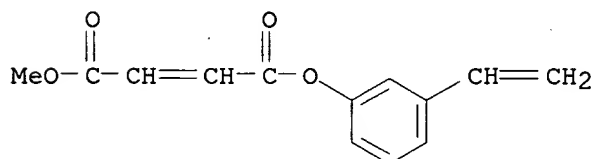
RN 349647-18-3 HCAPLUS

CN 2-Butenedioic acid, 3-ethenylphenyl methyl ester, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349647-17-2

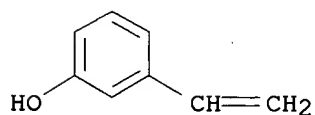
CMF C13 H12 O4



CM 2

CRN 620-18-8

CMF C8 H8 O



RN 349652-48-8 HCAPLUS

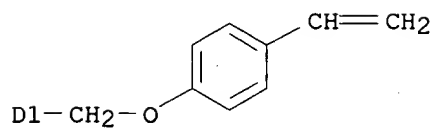
CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene and ethenyl[(4-ethenylphenoxy)methyl]benzene (9CI) (CA INDEX NAME)

CM 1

CRN 349652-44-4

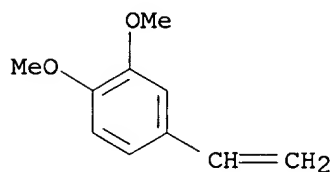
CMF C17 H16 O

CCI IDS

D1-CH=CH<sub>2</sub>

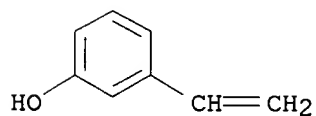
CM 2

CRN 6380-23-0

CMF C10 H12 O<sub>2</sub>

CM 3

CRN 620-18-8

CMF C<sub>8</sub> H<sub>8</sub> O

L33 ANSWER 20 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:524737 HCAPLUS

DN 135:114443

TI **Negative-working resist** composition

IN Uenishi, Kazuya; Adegawa, Yutaka; Shirakawa, Koji

PA Fuji Photo Film Co., Ltd., Japan

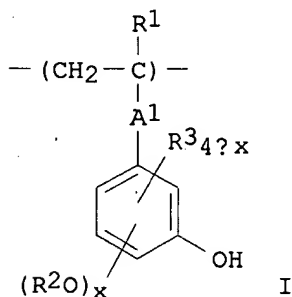
SO Eur. Pat. Appl., 87 pp.

CODEN: EPXXDW

DT Patent  
 LA English  
 IC ICM G03F007-004  
 ICS G03F007-038  
 CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 Section cross-reference(s): 35, 36, 76

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1117002	A1	20010718	EP 2001-100188	20010117
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2002049151	A2	20020215	JP 2000-235949	20000803
PRAI	JP 2000-8229	A	20000117		
	JP 2000-151477	A	20000523		
	JP 2000-235949	A	20000803		
OS	MARPAT 135:114443				
GI					



AB The invention relates to a neg.-working compn. useful in ultramicro-lithog. or other photofabrication for prodn. of VLSI or high-capacity microchips and to a **neg.-working photoresists** that can provide micropatterns using X-ray or electron beam, and that can be used in miniaturization processing of semiconductor devices using electron beams. The chem. amplification system **neg.-working resist** compn. for an electron beam and/or an x-ray, has excellent in sensitivity and resolu. and has a rectangular profile, comprising an alkali-sol. resin having structural units represented by (I), a compd. generating an acid by irradiation of the electron beam or the x-ray, and a crosslinking agent which initiates crosslinking by the acid.

ST **neg photoresist** crosslinking agent hydroxystyrene polymer

IT **Photoresists**  
 (chem.-amplified; **neg.-working photoresist** compn. for X-ray or electron beam lithog. contg. alkali-sol. resin and acidic crosslinking agent)

IT Crosslinking agents  
 Electron beam lithography  
 X-ray lithography  
 (**neg.-working photoresist** compn. for X-ray or electron beam lithog. contg. alkali-sol. resin and acidic crosslinking agent)

- IT 3089-11-0P 32449-09-5P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)  
(crosslinking agent; crosslinking agent in **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- IT 484-47-9P, 2,4,5-Triphenylimidazole 24979-70-2P, Poly(4-hydroxystyrene) 27029-76-1P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)  
(**neg.-working photoresist** compn. for X-ray or electron beam lithog. contg.)
- IT 220122-68-9P 270563-92-3P 270563-93-4P  
270563-96-7P 270563-98-9P 349619-84-7P  
349619-88-1P 349619-92-7P 349619-96-1P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)  
(photoacid generator; acid generating agent in **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
RL: DEV (Device component use); IMF (Industrial manufacture); SPN  
(Synthetic preparation); PREP (Preparation); USES (Uses)  
(photoacid generator; synthesis of acid-generating agent for **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- IT 161679-94-3P 161679-95-4P 161679-98-7P 162846-57-3P 185502-11-8P  
185502-14-1P 185502-15-2P 197087-73-3P 197087-74-4P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); SPN (Synthetic preparation); PREP  
(Preparation); USES (Uses)  
(synthesis of acid crosslinking agent for **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- IT 258341-98-9P 270564-02-8P, Tetramethylammonium pentafluorobenzenesulfonate  
RL: DEV (Device component use); IMF (Industrial manufacture); SPN  
(Synthetic preparation); PREP (Preparation); USES (Uses)  
(synthesis of acid-generating agent for **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- IT 24979-69-9P, Poly(3-hydroxystyrene) 24979-73-5P,  
3-Hydroxystyrene-styrene copolymer 149614-53-9P,  
3-Hydroxystyrene-4-hydroxystyrene copolymer 349619-43-8P  
349619-47-2P 349619-51-8P 349619-56-3P  
349619-61-0P 349619-65-4P 349619-68-7P  
349619-72-3P 349619-76-7P 349619-80-3P  
RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(synthesis of alkali-sol. polymer resin for **neg.-working photoresist** compn. for X-ray or electron beam lithog.)
- RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD  
RE  
(1) Anon; PATENT ABSTRACTS OF JAPAN 1990, V014(078), PP-1006  
(2) Anon; PATENT ABSTRACTS OF JAPAN 1998, V1998(05)  
(3) Anon; PATENT ABSTRACTS OF JAPAN 2000, V2000(06)  
(4) Fuji Photo Film Co Ltd; JP 05045878 A 1993 HCAPLUS  
(5) Fuji Photo Film Co Ltd; JP 10016423 A 1998 HCAPLUS  
(6) Fuji Photo Film Co Ltd; EP 1076261 A 2001 HCAPLUS  
(7) Japan Synthetic Rubber Co Ltd; EP 0633499 A 1995 HCAPLUS  
(8) Jsr Co Ltd; JP 10333323 A 1998 HCAPLUS

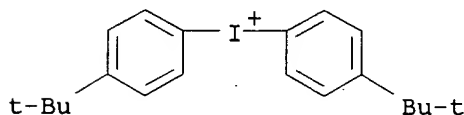


(9) Jsr Corp; EP 0898201 A 1999 HCAPLUS  
(10) Ota, T; US 6048666 A 2000 HCAPLUS  
(11) Tokyo Ohka Kogyo Co Ltd; JP 2000089459 A 2000 HCAPLUS  
(12) Tosoh Corp; JP 01293339 A 1989 HCAPLUS  
IT 220122-68-9P 270563-92-3P 270563-93-4P  
270563-96-7P 270563-98-9P 349619-84-7P  
349619-88-1P 349619-92-7P 349619-96-1P  
RL: DEV (Device component use); IMF (Industrial manufacture); MOA  
(Modifier or additive use); PREP (Preparation); USES (Uses)  
(photoacid generator; acid generating agent in **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)  
RN 220122-68-9 HCAPLUS  
CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 61267-44-5

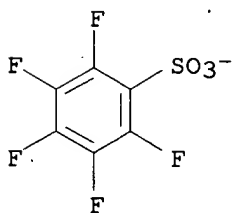
CMF C20 H26 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S

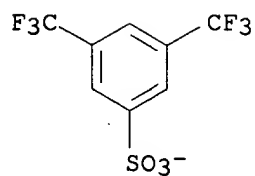


RN 270563-92-3 HCAPLUS  
CN Sulfonium, bis(4-methylphenyl)phenyl-, salt with 3,5-  
bis(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 213740-84-2

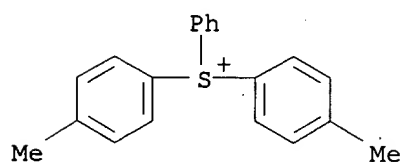
CMF C8 H3 F6 O3 S



CM 2

CRN 70082-58-5

CMF C20 H19 S



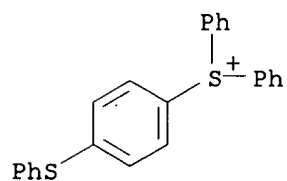
RN 270563-93-4 HCAPLUS

CN Sulfonium, diphenyl[4-(phenylthio)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 47480-44-4

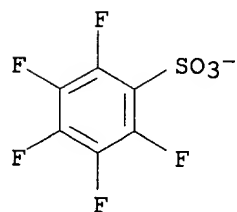
CMF C24 H19 S2



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



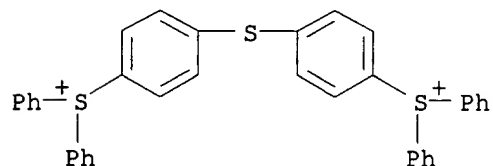
RN 270563-96-7 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[diphenyl-, salt with  
pentafluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 74227-34-2

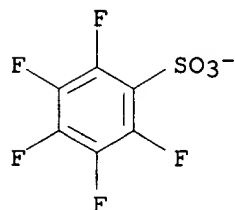
CMF C36 H28 S3



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



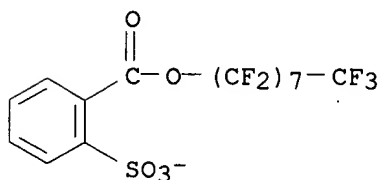
RN 270563-98-9 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis(4-methylphenyl)-, salt with  
1-(heptafluorooctyl) 2-sulfobenzoate (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 270563-97-8

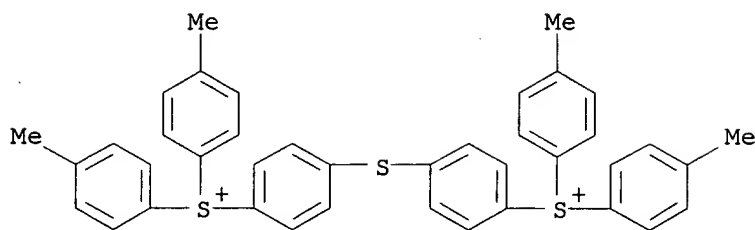
CMF C15 H4 F17 O5 S



CM 2

CRN 222722-48-7

CMF C40 H36 S3



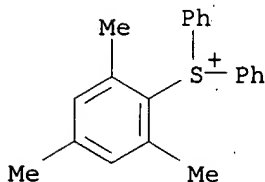
RN 349619-84-7 HCAPLUS

CN Sulfonium, diphenyl(2,4,6-trimethylphenyl)-, salt with  
2-nitro-4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX  
NAME)

CM 1

CRN 47191-44-6

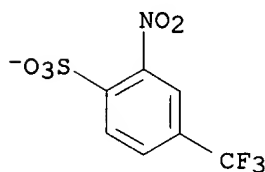
CMF C21 H21 S



CM 2

CRN 46806-65-9

CMF C7 H3 F3 N O5 S



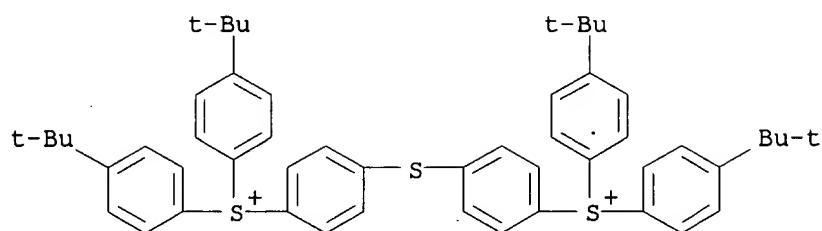
RN 349619-88-1 HCAPLUS

CN Sulfonium, (thiodi-4,1-phenylene)bis[bis[4-(1,1-dimethylethyl)phenyl]]-,  
salt with 4-fluorobenzenesulfonic acid (1:2) (9CI) (CA INDEX NAME)

CM 1

CRN 343629-56-1

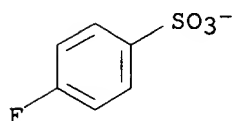
CMF C52 H60 S3



CM 2

CRN 61657-38-3

CMF C6 H4 F O3 S



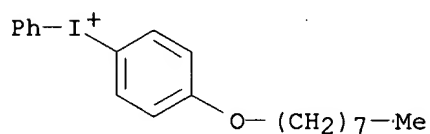
RN 349619-92-7 HCAPLUS

CN Iodonium, [4-(octyloxy)phenyl]phenyl-, salt with 4-fluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 121239-74-5

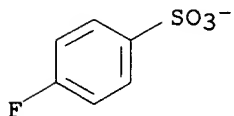
CMF C20 H26 I O



CM 2

CRN 61657-38-3

CMF C6 H4 F O3 S



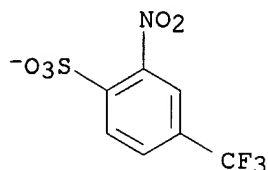
RN 349619-96-1 HCAPLUS

CN Iodonium, bis(4-methylphenyl)-, salt with 2-nitro-4-(trifluoromethyl)benzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 46806-65-9

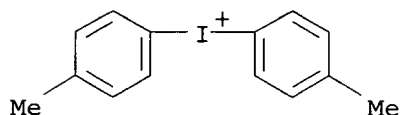
CMF C7 H3 F3 N O5 S



CM 2

CRN 46449-56-3

CMF C14 H14 I



IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
RL: DEV (Device component use); IMF (Industrial manufacture); SPN  
(Synthetic preparation); PREP (Preparation); USES (Uses)  
(photoacid generator; synthesis of acid-generating agent for  
neg.-working photoresist compn. for X-ray or electron  
beam lithog.)

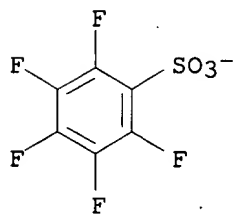
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

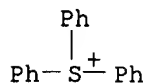
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



IT 258341-98-9P

RL: DEV (Device component use); IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)  
(synthesis of acid-generating agent for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

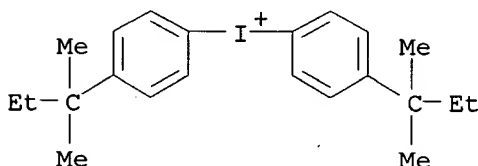
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with  
pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

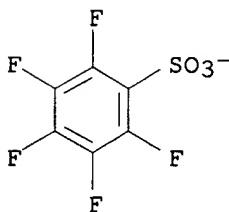
CMF C22 H30 I



CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT 24979-69-9P, Poly(3-hydroxystyrene) 24979-73-5P,  
3-Hydroxystyrene-styrene copolymer 149614-53-9P,  
3-Hydroxystyrene-4-hydroxystyrene copolymer 349619-43-8P  
349619-47-2P 349619-51-8P 349619-56-3P  
349619-61-0P 349619-65-4P 349619-68-7P  
349619-72-3P 349619-76-7P 349619-80-3P

RL: DEV (Device component use); IMF (Industrial manufacture); POF (Polymer in formulation); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(synthesis of alkali-sol. polymer resin for **neg.**-working  
**photoresist** compn. for X-ray or electron beam lithog.)

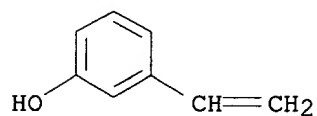
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O



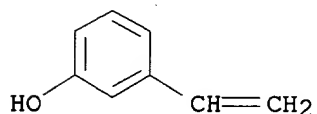
RN 24979-73-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

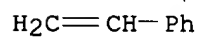
CMF C8 H8 O



CM 2

CRN 100-42-5

CMF C8 H8



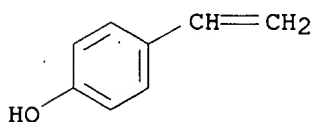
RN 149614-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 2628-17-3

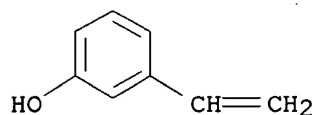
CMF C8 H8 O



CM 2



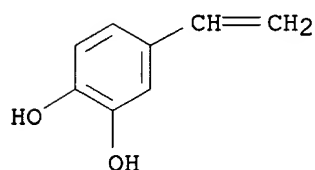
CRN 620-18-8  
CMF C8 H8 O



RN 349619-43-8 HCAPLUS  
CN 1,2-Benzenediol, 4-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA INDEX NAME)

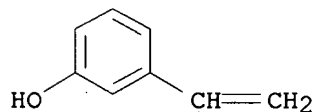
CM 1

CRN 6053-02-7  
CMF C8 H8 O2



CM 2

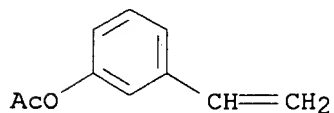
CRN 620-18-8  
CMF C8 H8 O



RN 349619-47-2 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 3-ethenylphenyl acetate (9CI) (CA INDEX NAME)

CM 1

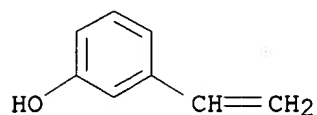
CRN 2454-30-0  
CMF C10 H10 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



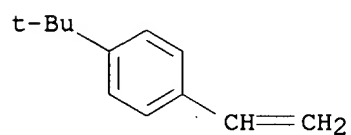
RN 349619-51-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-(1,1-dimethylethyl)-4-ethenylbenzene  
(9CI) (CA INDEX NAME)

CM 1

CRN 1746-23-2

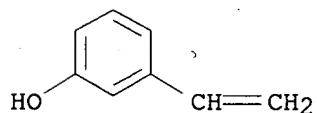
CMF C12 H16



CM 2

CRN 620-18-8

CMF C8 H8 O



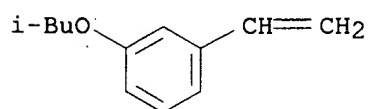
RN 349619-56-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-3-(2-methylpropoxy)benzene  
(9CI) (CA INDEX NAME)

CM 1

CRN 349619-55-2

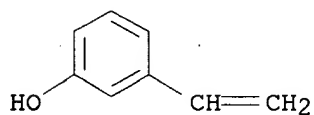
CMF C12 H16 O



CM 2

CRN 620-18-8

CMF C8 H8 O



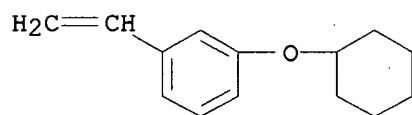
RN 349619-61-0 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-(cyclohexyloxy)-3-ethenylbenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 349619-60-9

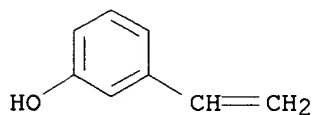
CMF C14 H18 O



CM 2

CRN 620-18-8

CMF C8 H8 O



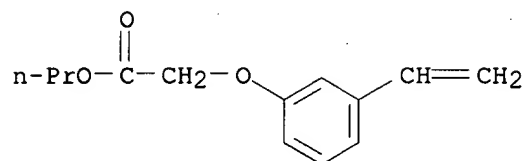
RN 349619-65-4 HCAPLUS

CN Acetic acid, (3-ethenylphenoxy)-, propyl ester, polymer with  
3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 349619-64-3

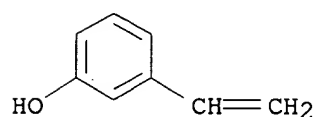
CMF C13 H16 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



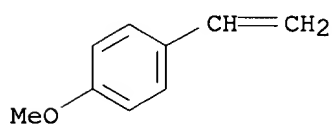
RN 349619-68-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-4-methoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 637-69-4

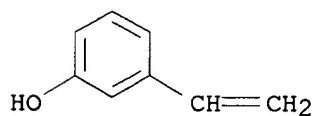
CMF C9 H10 O



CM 2

CRN 620-18-8

CMF C8 H8 O



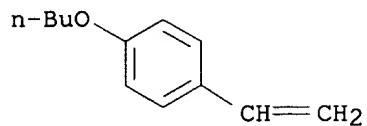
RN 349619-72-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-butoxy-4-ethenylbenzene (9CI) (CA INDEX NAME)

CM 1

CRN 105337-03-9

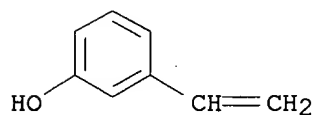
CMF C12 H16 O



CM 2

CRN 620-18-8

CMF C8 H8 O



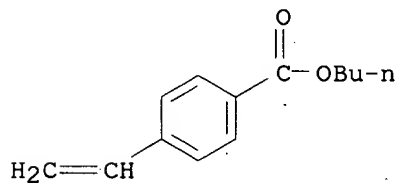
RN 349619-76-7 HCAPLUS

CN Benzoic acid, 4-ethenyl-, butyl ester, polymer with 3-ethenylphenol (9CI)  
(CA INDEX NAME)

CM 1

CRN 2715-41-5

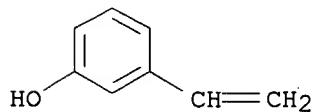
CMF C13 H16 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



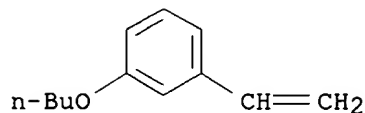
RN 349619-80-3 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-butoxy-3-ethenylbenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 156660-60-5

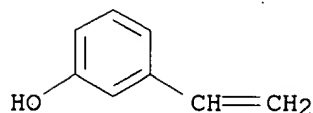
CMF C12 H16 O



CM 2

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 21 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:469374 HCAPLUS

DN 135:84296

TI Radiation-sensitive chemically amplified **negative**-working  
**resist** compositions containing vinylbenzodioxole derivatives  
 polymers

IN Adekawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 30 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM G03F007-038

ICS C08F002-54; C08K005-00; C08L025-18; G03F007-004; G03F007-033;

H01L021-027

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
 Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001174994	A2	20010629	JP 1999-358016	19991216
PRAI	JP 1999-358016		19991216		

OS MARPAT 135:84296

AB The resist compns. contain (A) alk.-sol. resins involving structure units  
 of 4-vinyl-1,3-benzodioxole derivs., compds. which generate acids by  
 electron beam or x-ray irradiation, acid-crosslinkable crosslinking agents,  
 and optionally F- and/or silicone-based surfactants. The compns. satisfy  
 properties of sensitivity, developability, and resist pattern profiles to  
 the use of electron beam or x-ray.

ST radiation sensitive chem amplified **neg resist**;  
 vinylbenzodioxole polymer alkali soly **neg resist**

IT Surfactants

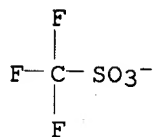
- (F- and/or silicone-based; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole deriv. polymers)
- IT **Resists**  
(**neg.**-working radiation-sensitive; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole deriv. polymers)
- IT Electron beam **resists**  
(**neg.**-working; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole deriv. polymers)
- IT X-ray **resists**  
(**neg.**; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole deriv. polymers)
- IT Crosslinking agents  
(radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT Polysiloxanes, uses  
RL: MOA (Modifier or additive use); USES (Uses)  
(surfactant; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT **66003-78-9** 157826-08-9  
RL: MOA (Modifier or additive use); USES (Uses)  
(acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT **153698-46-5P**, Triphenylsulfonium pentafluorobenzenesulfonate **258341-98-9P**  
RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)  
(acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT 161679-94-3P 162846-57-3P  
RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)  
(crosslinking agent; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT 3089-11-0 32449-09-5 161679-98-7 185502-11-8 185502-14-1 197087-73-3 197087-74-4 346694-57-3 346694-58-4  
RL: MOA (Modifier or additive use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)  
(crosslinking agent; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P** 270564-02-8P  
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)  
(intermediate for acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)
- IT 346694-37-9P  
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
(radiation-sensitive chem. amplified **neg.**-working

**resist** compns. contg. vinylbenzodioxole deriv. polymers)  
 IT 346694-39-1P 346694-41-5P **346694-43-7P** 346694-45-9P  
**346694-47-1P** 346694-48-2P **346694-50-6P** 346694-51-7P  
**346694-53-9P** 346694-54-0P 346694-55-1P  
 RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)  
 (radiation-sensitive chem. amplified **neg.**-working  
**resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 IT 945-51-7, Diphenyl sulfoxide  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reactant for acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 IT 832-53-1, Pentafluorobenzenesulfonyl chloride 2049-95-8, tert-Amylbenzene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (starting material for acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 IT 110726-28-8, 1- $[\alpha$ -Methyl- $\alpha$ -(4-hydroxyphenyl)ethyl]-4- $[\alpha$ , $\alpha$ -bis(4-hydroxyphenyl)ethyl]benzene  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (starting material for crosslinking agent; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 IT 137462-24-9, Megafac F 176 216679-67-3, Megafac R 08  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (surfactant; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 IT **66003-78-9**  
 RL: MOA (Modifier or additive use); USES (Uses)  
 (acid generator; radiation-sensitive chem. amplified **neg.**-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)  
 RN 66003-78-9 HCAPLUS  
 CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
 (CA INDEX NAME)

CM 1

CRN 37181-39-8

CMF C F3 O3 S

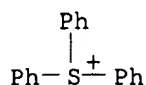


CM 2

CRN 18393-55-0

CMF C18 H15 S





IT 153698-46-5P, Triphenylsulfonium pentafluorobenzenesulfonate  
258341-98-9P

RL: MOA (Modifier or additive use); PNU (Preparation, unclassified); PREP (Preparation); USES (Uses)

(acid generator; radiation-sensitive chem. amplified **neg** .-working **resist** compns. contg. vinylbenzodioxole derivs. polymers)

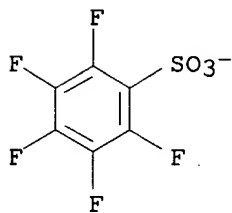
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

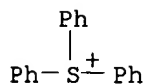
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



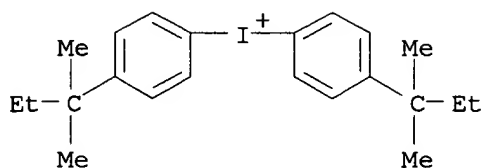
RN 258341-98-9 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, salt with pentafluorobenzenesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 249300-51-4

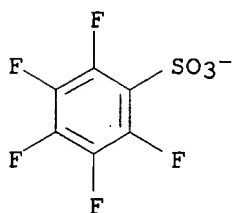
CMF C22 H30 I



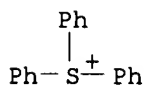
CM 2

CRN 46377-88-2

CMF C6 F5 O3 S



IT **3744-08-9P**, Triphenylsulfonium iodide **258342-09-5P**  
 RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation);  
 RACT (Reactant or reagent)  
 (intermediate for acid generator; radiation-sensitive chem. amplified  
 neg.-working resist comps. contg. vinylbenzodioxole  
 derivs. polymers)  
 RN 3744-08-9 HCAPLUS  
 CN Sulfonium, triphenyl-, iodide (8CI, 9CI) (CA INDEX NAME)

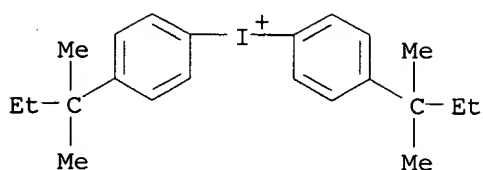
I<sup>-</sup>

RN 258342-09-5 HCAPLUS  
 CN Iodonium, bis[4-(1,1-dimethylpropyl)phenyl]-, sulfate (2:1) (9CI) (CA  
 INDEX NAME)

CM 1

CRN 249300-51-4

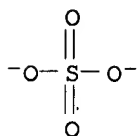
CMF C22 H30 I



CM 2

CRN 14808-79-8

CMF 04 S



IT 346694-43-7P 346694-47-1P 346694-50-6P

346694-53-9P

RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(radiation-sensitive chem. amplified **neg.**-working**resist** compns. contg. vinylbenzodioxole derivs. polymers)

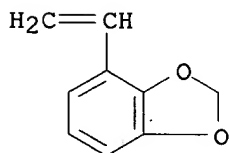
RN 346694-43-7 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,3-benzodioxole (9CI) (CA INDEX NAME)

CM 1

CRN 104721-74-6

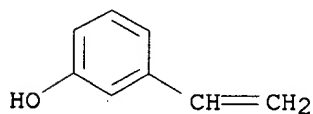
CMF C9 H8 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



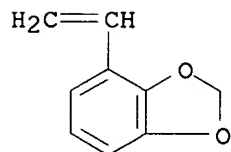
RN 346694-47-1 HCAPLUS

CN Carbonic acid, 1,1-dimethylethyl 4-ethenylphenyl ester, polymer with 4-ethenyl-1,3-benzodioxole and 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 104721-74-6

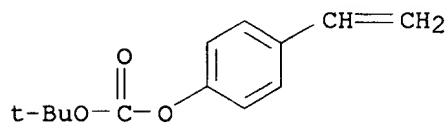
CMF C9 H8 O2



CM 2

CRN 87188-51-0

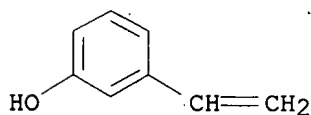
CMF C13 H16 O3



CM 3

CRN 620-18-8

CMF C8 H8 O



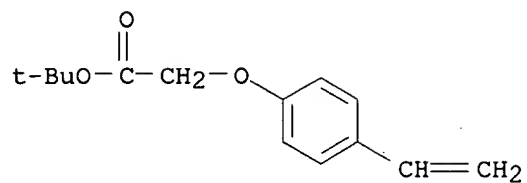
RN 346694-50-6 HCAPLUS

CN Acetic acid, (4-ethenylphenoxy)-, 1,1-dimethylethyl ester, polymer with 4-ethenyl-1,3-benzodioxole and 3-ethenylphenol (9CI) (CA INDEX NAME)

CM 1

CRN 142952-61-2

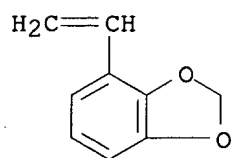
CMF C14 H18 O3



CM 2

CRN 104721-74-6

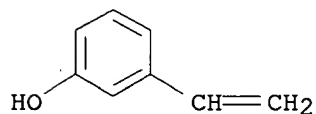
CMF C9 H8 O2



CM 3

CRN 620-18-8

CMF C8 H8 O



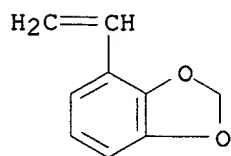
RN 346694-53-9 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,3-benzodioxole and 1-ethenyl-4-methoxybenzene (9CI) (CA INDEX NAME)

CM 1

CRN 104721-74-6

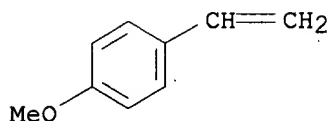
CMF C9 H8 O2



CM 2

CRN 637-69-4

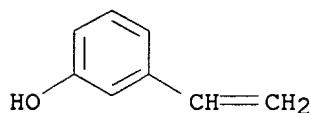
CMF C9 H10 O



CM 3

CRN 620-18-8

CMF C8 H8 O



L33 ANSWER 22 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 2001:451017 HCAPLUS

DN 135:53501

TI Chemical amplification type **negative-working resist**  
composition for electron beams or x-rays

IN Adegawa, Yutaka

PA Fuji Photo Film Co., Ltd., Japan

SO Eur. Pat. Appl., 72 pp.

CODEN: EPXXDW

DT Patent

LA English

IC ICM G03F007-038

ICS G03F007-004

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other  
Reprographic Processes)

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1109066	A1	20010620	EP 2000-127268	20001218
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	JP 2001174995	A2	20010629	JP 1999-358022	19991216
	US 2001036590	A1	20011101	US 2000-737568	20001218
	US 6528233	B2	20030304		
PRAI	JP 1999-358022	A	19991216		
OS	MARPAT 135:53501				

AB The invention relates to a **neg. working resist** compn. capable of forming fine patterns using X-rays and electron beams, used in super-lithog. process for producing VLSI and high-capacity microchips and semiconductor devices and other photofabrication processes. A neg.-working chem. amplification-type resist compn. for electron beams or x-rays satisfying the characteristics of the sensitivity and resolu..bul.resist pattern for the use of electron beams or x-rays is provided. The chem. amplification-type **neg.-working resist** compn. contains (a) an alkali-sol. resin having a wt.-av. mol. wt. of exceeding 3,000 and not larger than 1,000,000, (b) a

crosslinking agent causing crosslinkage by an acid, and (c) a compd. generating an acid by the irradiation of electron beams or x-rays, wherein the alkali-sol. resin has a specific structure.

ST **neg resist** electron beam x ray microchip photolithog

IT Photolithography

(chem. amplified **neg.**-working **resist** compn. for electron beams or x-rays)

IT Electron beam **resists**

X-ray **resists**

(chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. alkali-sol. resin)

IT Crosslinking agents

(chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. alkali-sol. resin and)

IT **Negative photoresists**

(chem.-amplified; chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. alkali-sol. resin)

IT 345212-99-9P

RL: DEV (Device component use); MOA (Modifier or additive use); NUU (Other use, unclassified); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. alkali-sol. resin of)

IT 321164-59-4P 345212-25-1P 345212-26-2P 345212-27-3P

**345212-28-4P 345212-29-5P 345212-30-8P**

345212-32-0P 345212-34-2P 345212-36-4P **345212-37-5P**

**345212-38-6P 345212-40-0P** 345212-41-1P 345212-43-3P

345212-45-5P 345212-46-6P 345212-47-7P 345212-49-9P 345212-51-3P

345212-53-5P 345212-54-6P 345212-55-7P 345212-56-8P 345212-57-9P

345212-59-1P 345212-60-4P 345212-61-5P 345212-63-7P 345212-64-8P

345212-67-1P 345212-69-3P 345212-71-7P 345212-73-9P 345212-74-0P

345212-75-1P 345212-77-3P 345212-78-4P 345212-80-8P 345212-82-0P

345212-84-2P 345212-85-3P 345212-86-4P 345212-87-5P 345212-89-7P

345212-91-1P 345212-92-2P 345212-93-3P 345212-95-5P 345212-97-7P

RL: DEV (Device component use); NUU (Other use, unclassified); PNU (Preparation, unclassified); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. alkali-sol. resin of)

IT 3089-11-0P 161679-94-3P 162846-57-3P 244057-73-6P

RL: DEV (Device component use); MOA (Modifier or additive use); NUU (Other use, unclassified); SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(chem.-amplified **neg.**-working **resist** compn. for electron beams or x-rays contg. crosslinking agent)

IT 17464-88-9 **153698-46-5**, Triphenylsulfonium

pentafluorobenzenesulfonate 157826-08-9 270564-02-8,

Tetramethylammonium pentafluorobenzenesulfonate

RL: DEV (Device component use); MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)

(synthesis of, as photoacid generator in chem. amplified **neg.**-working **resist** compn. for electron beams or x-rays)

RE.CNT 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Fuji Photo Film Co Ltd; EP 0823659 A 1998 HCAPLUS

(2) Fuji Photo Film Co Ltd; EP 0874282 A 1998 HCAPLUS

(3) Szmanda, C; US 5866299 A 1999 HCAPLUS

IT **345212-28-4P 345212-29-5P 345212-30-8P**

**345212-37-5P 345212-38-6P 345212-40-0P**

RL: DEV (Device component use); NUU (Other use, unclassified); PNU  
(Preparation, unclassified); POF (Polymer in formulation); TEM (Technical  
or engineered material use); PREP (Preparation); USES (Uses)

(chem.-amplified **neg.**-working **resist** compn. for  
electron beams or x-rays contg. alkali-sol. resin of)

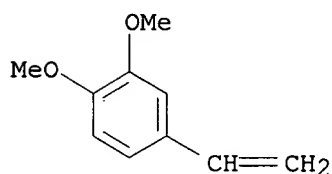
RN 345212-28-4 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-1,2-dimethoxybenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 6380-23-0

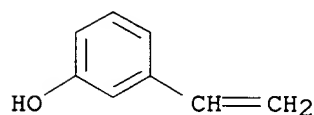
CMF C10 H12 O2



CM 2

CRN 620-18-8

CMF C8 H8 O



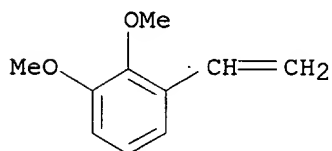
RN 345212-29-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 1-ethenyl-2,3-dimethoxybenzene (9CI) (CA  
INDEX NAME)

CM 1

CRN 17055-36-6

CMF C10 H12 O2

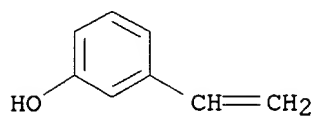


CM 2

CRN 620-18-8



CMF C8 H8 O



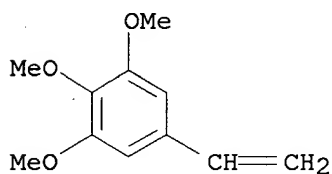
RN 345212-30-8 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-1,2,3-trimethoxybenzene (9CI)  
(CA INDEX NAME)

CM 1

CRN 13400-02-7

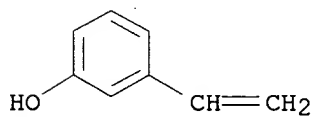
CMF C11 H14 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



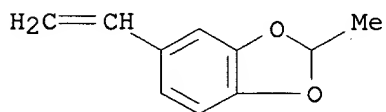
RN 345212-37-5 HCAPLUS

CN Phenol, 3-ethenyl-, polymer with 5-ethenyl-2-methyl-1,3-benzodioxole (9CI)  
(CA INDEX NAME)

CM 1

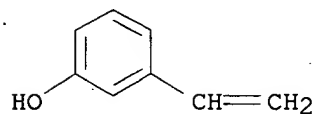
CRN 345212-31-9

CMF C10 H10 O2



CM 2

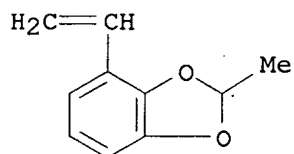
CRN 620-18-8  
CMF C8 H8 O



RN 345212-38-6 HCAPLUS  
CN Phenol, 3-ethenyl-, polymer with 4-ethenyl-2-methyl-1,3-benzodioxole (9CI)  
(CA INDEX NAME)

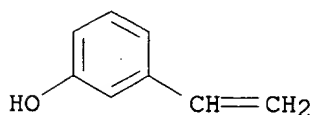
CM 1

CRN 345212-33-1  
CMF C10 H10 O2



CM 2

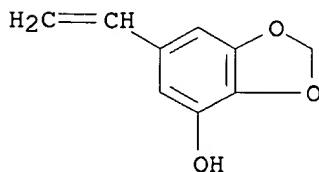
CRN 620-18-8  
CMF C8 H8 O



RN 345212-40-0 HCAPLUS  
CN 1,3-Benzodioxol-4-ol, 6-ethenyl-, polymer with 3-ethenylphenol (9CI) (CA  
INDEX NAME)

CM 1

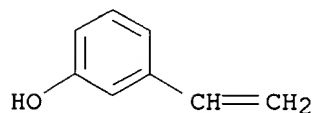
CRN 345212-39-7  
CMF C9 H8 O3



CM 2

CRN 620-18-8

CMF C8 H8 O



IT 153698-46-5, Triphenylsulfonium pentafluorobenzenesulfonate  
RL: DEV (Device component use); MOA (Modifier or additive use); NUU (Other use, unclassified); USES (Uses)  
(synthesis of, as photoacid generator in chem. amplified **neg** .-working **resist** compn. for electron beams or x-rays)

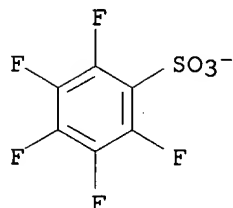
RN 153698-46-5 HCAPLUS

CN Sulfonium, triphenyl-, salt with pentafluorobenzenesulfonic acid (1:1)  
(9CI) (CA INDEX NAME)

CM 1

CRN 46377-88-2

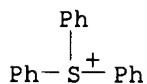
CMF C6 F5 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S



L33 ANSWER 23 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 1998:627436 HCAPLUS

DN 129:308520

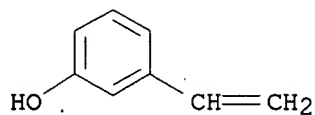
TI Negative-working radiation-sensitive resin composition containing styrene polymer

IN Iwanaga, Shinichiro; Ohta, Yoshihisa; Mongaki, Kazumi

PA JSR Co., Ltd., Japan  
SO Jpn. Kokai Tokkyo Koho, 10 pp.  
CODEN: JKXXAF  
DT Patent  
LA Japanese  
IC ICM G03F007-038  
ICS C08L025-18; G03F007-004; H01L021-027  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

FAN.CNT 1

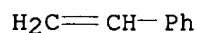
	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE					
PI	JP 10254135	A2	19980925	JP 1997-74716	19970312					
PRAI	JP 1997-74716		19970312							
AB	The title compn. contains (a) an alkali-sol. resin including hydroxystyrene (I)-styrene copolymers (70-95 mol% I content) and I-.alpha.-methylstyrene copolymers, (b) a radiation-sensitive acid generator including an onium salt compd., (c) a crosslinking agent of an alkoxyethylated glycoluril compd., and (d) a basic compd. The compn. is adaptable to alk. developing solns. with usual concns. and provides high resoln. patterns with good profile and dimensional stability.									
ST	<b>neg</b> radiation sensitive <b>resist</b> styrene polymer; alkali sol hydroxystyrene styrene copolymer resist; methylstyrene styrene copolymer acid generator resist									
IT	<b>Photoresists</b> (UV, far-; <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	<b>Resists</b> ( <b>neg.</b> -working radiation-sensitive; <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	98-92-0, Nicotinic acid amide	102-82-9, Tri-n-butylamine	121-44-8,	uses						
	RL: MOA (Modifier or additive use); USES (Uses) (basic compd.; <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	15968-37-3	17464-88-9, Tetramethoxymethyl glycoluril								
	RL: CAT (Catalyst use); USES (Uses) (crosslinking agent; <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	24979-73-5	24979-74-6, p-Hydroxystyrene-styrene copolymer								
	24979-75-7	127523-21-1, p-Hydroxystyrene-.alpha.-methylstyrene copolymer								
	RL: TEM (Technical or engineered material use); USES (Uses) ( <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	66003-78-9, Triphenylsulfonium trifluoromethane sulfonate									
	84563-54-2	149125-91-7	160481-39-0	214534-44-8						
	RL: CAT (Catalyst use); USES (Uses) (radiation-sensitive acid generator; <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
IT	24979-73-5									
	RL: TEM (Technical or engineered material use); USES (Uses) ( <b>neg.</b> -working radiation-sensitive resin compn. contg. styrene polymer)									
RN	24979-73-5	HCAPLUS								
CN	Phenol, 3-ethenyl-, polymer with ethenylbenzene (9CI) (CA INDEX NAME)									
CM	1									
CRN	620-18-8									
CMF	C8 H8 O									



CM 2

CRN 100-42-5

CMF C8 H8



IT 66003-78-9, Triphenylsulfonium trifluoromethane sulfonate

84563-54-2 149125-91-7 214534-44-8

RL: CAT (Catalyst use); USES (Uses)

(radiation-sensitive acid generator; neg.-working radiation-sensitive resin compn. contg. styrene polymer)

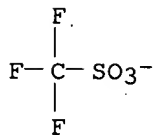
RN 66003-78-9 HCAPLUS

CN Sulfonium, triphenyl-, salt with trifluoromethanesulfonic acid (1:1) (9CI)  
(CA INDEX NAME)

CM 1

CRN 37181-39-8

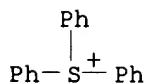
CMF C F3 O3 S



CM 2

CRN 18393-55-0

CMF C18 H15 S

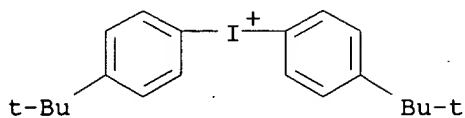


RN 84563-54-2 HCAPLUS

CN Iodonium, bis[4-(1,1-dimethylethyl)phenyl]-, salt with  
trifluoromethanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

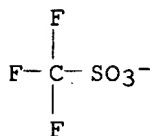
CM 1

CRN 61267-44-5  
CMF C20 H26 I



CM 2

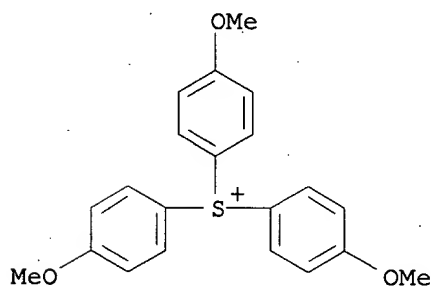
CRN 37181-39-8  
CMF C F3 O3 S



RN 149125-91-7 HCAPLUS  
CN Sulfonium, tris(4-methoxyphenyl)-, salt with trifluoromethanesulfonic acid  
(1:1) (9CI) (CA INDEX NAME)

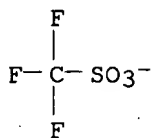
CM 1

CRN 59004-75-0  
CMF C21 H21 O3 S



CM 2

CRN 37181-39-8  
CMF C F3 O3 S



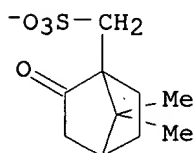
RN 214534-44-8 HCAPLUS

CN Iodonium, diphenyl-, salt with 7,7-dimethyl-2-oxobicyclo[2.2.1]heptane-1-methanesulfonic acid (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 55077-28-6

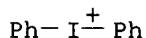
CMF C10 H15 O4 S



CM 2

CRN 10182-84-0

CMF C12 H10 I



L33 ANSWER 24 OF 25 HCAPLUS COPYRIGHT 2003 ACS

AN 1991:570718 HCAPLUS

DN 115:170718

TI Acid-catalyzed pinacol rearrangement: chemically amplified reverse polarity change

AU Sooriyakumaran, R.; Ito, Hiroshi; Mash, Eugene A.

CS East Fishkill Facil., IBM Gen. Technol. Div., Hopewell Junction, NY, 12533, USA

SO Proceedings of SPIE-The International Society for Optical Engineering (1991), 1466(Adv. Resist Technol. Process. 8), 419-28

CODEN: PSISDG; ISSN: 0277-786X

DT Journal

LA English

CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

AB The reverse polarity change from a polar to a nonpolar state was successfully incorporated in the design of chem. amplification resists. The imaging mechanism is based on the pinacol-pinacolone rearrangement, wherein vic-diols (pinacols) are converted to ketones or aldehydes with photochem. generated acid as a catalyst. In addn. to a polymeric pinacol

which undergoes the rearrangement very cleanly in the solid state, aq. base developable three-component **neg.** deep-UV **resist** systems are described, which are based on phenolic resins, small pinacols, and triphenylsulfonium hexafluoroantimonate as the acid generator.

ST photoresist chem amplification pinacol rearrangement

IT **Resists**

(photo-, **neg.**-working, chem. amplification system for, based on acid-catalyzed with pinacol rearrangement)

IT Rearrangement

(pinacol, acid-catalyzed, **photoresist** system with **neg.** chem. amplification based on)

IT 466-37-5P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in acid-catalyzed rearrangement of benzopinacole, **photoresist** system with **neg.** chem. amplification in relation to)

IT 947-91-1P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in acid-catalyzed rearrangement of hydrobenzoin, **photoresist** system with **neg.** chem. amplification in relation to)

IT 770-85-4P, 3-Methyl-3-phenyl-2-butanone

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in acid-catalyzed rearrangement of methylphenylbutanediol, **photoresist** system with **neg.** chem. amplification in relation to)

IT 136474-76-5P

RL: FORM (Formation, nonpreparative); PREP (Preparation)

(formation of, in rearrangement of polymeric pinacol, **photoresist** system with **neg.** chem. amplification in relation to)

IT 9016-83-5, Cresol-formaldehyde copolymer **24979-69-9** 24979-70-2  
**57840-38-7**

RL: USES (Uses)

(**photoresist** system with **neg.** chem. amplification based on acid-catalyzed pinacol rearrangement contg.)

IT 136474-75-4P, Poly(3-methyl-2-(p-vinylphenyl)-2,3-butanediol)

RL: PREP (Preparation)

(prepn. and acid-catalyzed rearrangement of, **photoresist** with **neg.** chem. amplification in relation to)

IT 1493-13-6, Triflic acid

RL: USES (Uses)

(rearrangement of polymeric pinacol treated with, **photoresist** with **neg.** chem. amplification in relation to)

IT 464-72-2 579-43-1, meso-Hydrobenzoin 1671-73-4, 3-Methyl-2-phenyl-2,3-butanediol

RL: RCT (Reactant); RACT (Reactant or reagent)

(rearrangement of, lithog. characteristics of **photoresist** system with **neg.** chem. amplification contg.)

IT **24979-69-9 57840-38-7**

RL: USES (Uses)

(**photoresist** system with **neg.** chem. amplification based on acid-catalyzed pinacol rearrangement contg.)

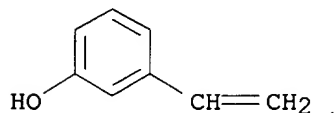
RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1



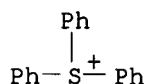
CRN 620-18-8  
CMF C8 H8 O



RN 57840-38-7 HCAPLUS  
CN Sulfonium, triphenyl-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

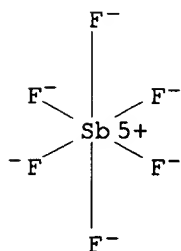
CM 1

CRN 18393-55-0  
CMF C18 H15 S



CM 2

CRN 17111-95-4  
CMF F6 Sb  
CCI CCS



L33 ANSWER 25 OF 25 HCAPLUS COPYRIGHT 2003 ACS  
AN 1991:570717 HCAPLUS  
DN 115:170717  
TI **Negative** chemical amplification **resist** systems based  
on poly(hydroxystyrene)s and N-substituted imides or aldehydes  
AU Ito, Hiroshi; Schildknegt, Klaas; Mash, Eugene A.  
CS Almaden Res. Cent., IBM Res. Div., San Jose, CA, 95120, USA  
SO Proceedings of SPIE-The International Society for Optical Engineering  
(1991), 1466(Adv. Resist Technol. Process. 8), 408-18  
CODEN: PSISDG; ISSN: 0277-786X  
DT Journal  
LA English  
CC 74-5 (Radiation Chemistry, Photochemistry, and Photographic and Other

## Reprographic Processes)

- AB Aq. base developable **neg.** deep-UV **resist** systems composed of phenolic resins, monofunctional latent electrophiles, and a sulfonium salt photochem. acid generator are described. This study was carried out to see whether attachment of a bulky substituent onto the phenolic group via C- or O-alkylation reduces the dissoln. rate of the phenolic resin in aq. base to provide **neg.** images even when no crosslinking is involved in the mechanism. The latent electrophiles selected are N-hydroxymethyl- and N-acetoxymethylimides as well as high-boiling aldehydes. The matrix resins are para-, meta-, and ortho-isomers of poly(vinylphenol) and copolymers of p-hydroxystyrene.
- ST **photoresist neg** chem amplification polyhydroxystyrene; imide deriv hydroxystyrene polymer photoresist; aldehyde deriv hydroxystyrene polymer photoresist; hydroxystyrene polymer imide aldehyde photoresist microlithog
- IT **Resists**  
(photo-, **neg.**-working, chem. amplification system based on poly(hydroxystyrenes) and N-substituted imides or aldehydes)
- IT 23713-94-2P  
RL: FORM (Formation, nonpreparative); PREP (Preparation)  
(formation of, in reaction of isopropylphenol with acetoxymethylsuccinimide, **photoresist** with **neg.** chem. amplification in relation to)
- IT **57840-38-7**, Triphenylsulfonium hexafluoroantimonate  
RL: USES (Uses)  
(**photoresist** system with **neg.** chem. amplification based on poly(hydroxystyrene) derivs. and substituted imides or aldehydes and, mechanism of processes in)
- IT 112-31-2, Decylaldehyde  
RL: USES (Uses)  
(**photoresist** system with **neg.** chem. amplification contg. poly(hydroxystyrene) and photoacid generator and, characterization of)
- IT 123-11-5, p-Anisaldehyde, properties 134-96-3 621-59-0 623-27-8, Terephthalaldehyde 626-19-7, Isophthalaldehyde 643-79-8, 1,2-Benzenedicarboxaldehyde 947-91-1  
RL: PRP (Properties)  
(**photoresist** system with **neg.** chem. amplification contg. poly(hydroxystyrene) and photoacid generator and, characterization of)
- IT 118-29-6 5063-96-7, N-Hydroxymethylmaleimide 5146-68-9 5493-24-3, N-Acetoxymethylphthalimide 7450-68-2, N-Acetoxymethylmaleimide 21886-96-4  
RL: USES (Uses)  
(**photoresist** system with **neg.** chem. amplification contg. poly(hydroxystyrene) deriv. and triphenylsulfonium hexafluoroantimonate and, mechanism of processes in)
- IT **24979-69-9** 24979-70-2 24980-18-5 110123-09-6, Hydroxyethyl methacrylate-p-hydroxystyrene polymer 135648-85-0, p-Hydroxystyrene-p-methoxystyrene copolymer  
RL: USES (Uses)  
(**photoresist** system with **neg.** chem. amplification contg. substituted imides or aldehydes and, mechanism of processes in)
- IT 25750-62-3  
RL: USES (Uses)  
(**photoresist** with **neg.** chem. amplification contg.)
- IT 25657-75-4 136474-77-6 136474-78-7 136474-79-8  
RL: USES (Uses)

(photoresist with neg. chem. amplification in relation to)

IT 99-89-8, p-Isopropylphenol 1493-13-6, Trifluoromethane sulfonic acid  
 RL: RCT (Reactant); RACT (Reactant or reagent)  
 (reaction of, with N-substituted imides, photoresist with neg. chem. amplification in relation to)

IT 57840-38-7, Triphenylsulfonium hexafluoroantimonate  
 RL: USES (Uses)  
 (photoresist system with neg. chem. amplification based on poly(hydroxystyrene) derivs. and substituted imides or aldehydes and, mechanism of processes in)

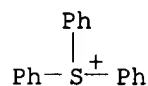
RN 57840-38-7 HCAPLUS

CN Sulfonium, triphenyl-, (OC-6-11)-hexafluoroantimonate(1-) (9CI) (CA INDEX NAME)

CM 1

CRN 18393-55-0

CMF C18 H15 S

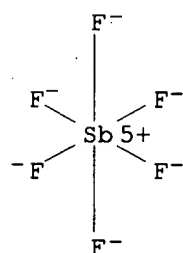


CM 2

CRN 17111-95-4

CMF F6 Sb

CCI CCS



IT 24979-69-9  
 RL: USES (Uses)  
 (photoresist system with neg. chem. amplification contg. substituted imides or aldehydes and, mechanism of processes in)

RN 24979-69-9 HCAPLUS

CN Phenol, 3-ethenyl-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 620-18-8

CMF C8 H8 O

